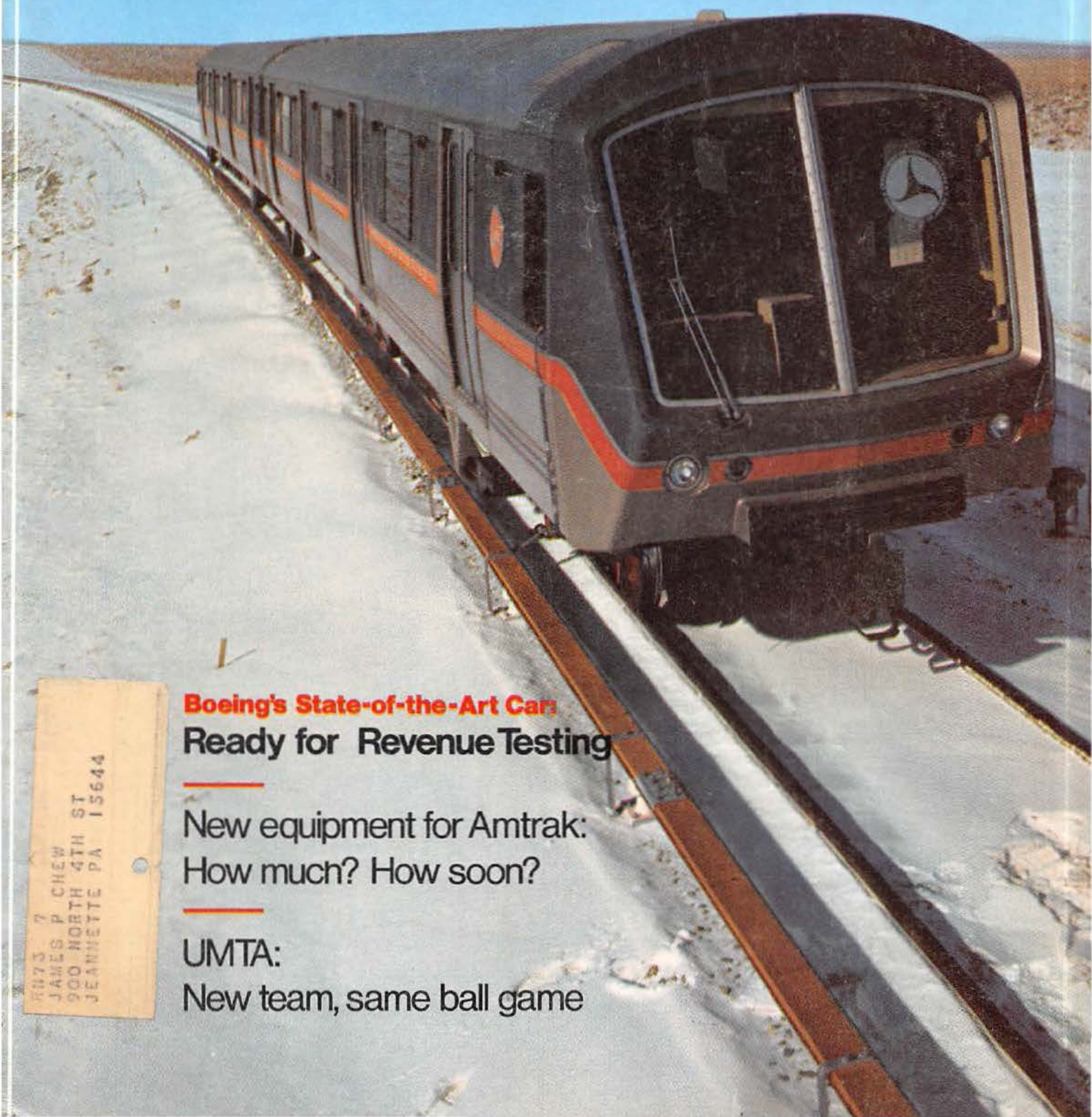
MOVING PEOPLE: 1973 OUTLOOK

January 8, 1973

RAILWAY AGE



1973 ?
JAMES P CHEW
900 NORTH 4TH ST
JEANNETTE PA 15644

Boeing's State-of-the-Art Car:
Ready for Revenue Testing

New equipment for Amtrak:
How much? How soon?

UMTA:
New team, same ball game

New from Buffalo Brake Beam...

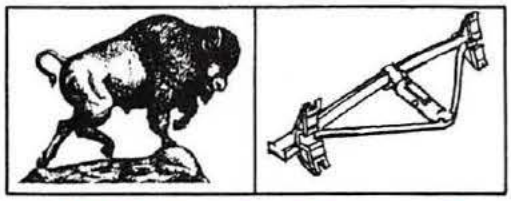
Buffalo Bushings

Buffalo Brake Beam now offers:

- Steel Bushings
- Case Hardened
- Thin Wall
- For Press Fit Application
- 1⅛" I.D. and 1⅜" I.D. Sizes available from stock

LOW-COST METHOD TO REDUCE WEAR and FRICTION

SEND FOR FREE SAMPLES



Buffalo Brake Beam Co.

400 Ingham Avenue
Lackawanna, N.Y. 14218
In Canada:
Davanac Industries, Inc.
155 Montpelier Blvd., Montreal 379, Que.
Plant: Hamilton, Ontario

Circle 1 on coupon page 41

Mail this coupon and samples of Buffalo Bushings will be sent to you immediately.

NAME _____

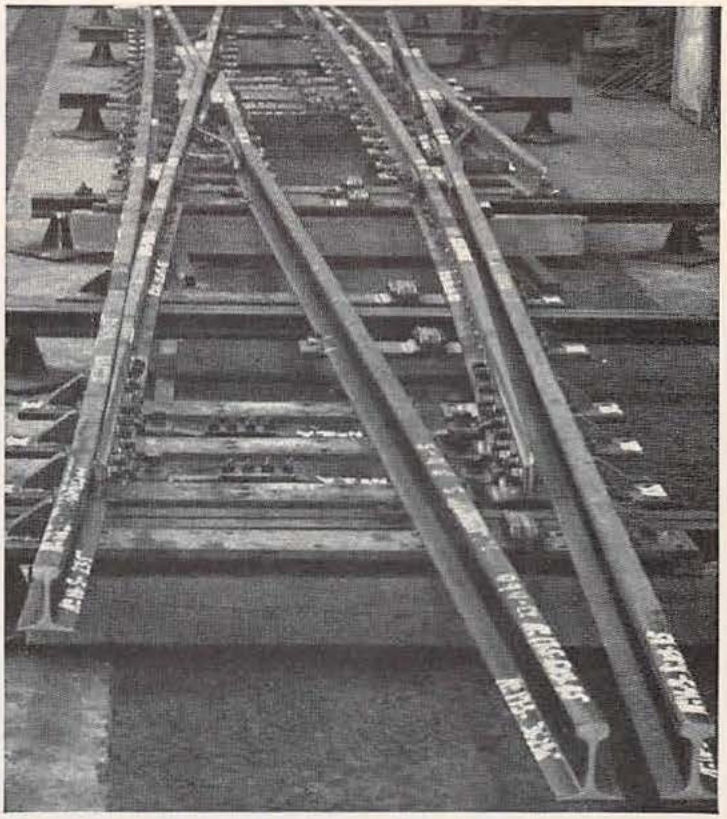
COMPANY _____

ADDRESS _____

CITY _____ STATE _____ ZIP _____

SIZE: 1-1/8" ☐ 1-3/8" ☐

One #10 single slip switch coming right up



When you need some special trackwork–a slip switch, for example–turn the project over to Bethlehem. We know how to handle the job in the most economical way possible.

After fabrication of the component parts, we assemble the trackwork on our spacious layout floor, down to the last tie bar and track bolt. Then we inspect the completed assembly with meticulous care, to make sure that each piece will fit at the site.

Only then do we dismantle and bundle the parts for shipment, with all pieces matchmarked for easy identification in the field. No unneeded material, no wasted manhours. Minimum disruption of traffic. Do you know a better way to buy complex trackwork? Bethlehem Steel Corporation, Bethlehem, PA 18016.

BETHLEHEM STEEL

BEAUTIFUL WAY TO RUN A RAILROAD!

When your right-of-way and yards look like this, the reason could well be ORTHO Paraquat CL, a non-residual, contact herbicide that kills weeds with fantastic speed. It stays active in low temperatures and works at low concentrations.

Paraquat is non-explosive and non-flammable. It's water-soluble, is rapidly absorbed by weeds so you don't have to worry about rain ruining your spray job after application. And it's non-residual because it's inactivated upon contact with the soil.

Use Paraquat in conjunction with your regular herbicide program and reduce the problem of weed escapes.

Write CHEVRON CHEMICAL COMPANY, Dept. P-R, 200 Bush Street, San Francisco, CA 94120 for free Paraquat Brochure.

Chevron

ORTHO Chevron Chemical Company

TM'S: ORTHO, CHEVRON AND DESIGN—REG. U.S. PAT. OFF.
AVOID ACCIDENTS: READ THE LABEL AND USE ONLY AS DIRECTED.

RAILWAY AGE

January 8, 1973 • Vol. 174 No.1

Editorial and Executive Offices
New York, N.Y. 10013, 350 Broadway
(212) 966-7700

ROBERT G. LEWIS: Publisher
LUTHER S. MILLER: Editor
FRED C. MILES: Executive Editor

Mechanical: Fred N. Houser
Transit: Joe Asher
Art Director: Maurice H. Mates
Editorial Assistant: June Meyer
Librarian: Edith C. Stone
Production Manager: Fred B. Hecht
Manager—Contract Department:
Constance Nicolai
Promotion Director: George Dusenbury

Editorial and Executive Offices
Chicago, Ill. 60602, 29 E. Madison St.
(312) 641-5815

C. JAMES FISHER: Vice President—Sales
GUS WELTY: Senior Editor

Mechanical: Robert D. Bartley
Engineering:
Merwin H. Dick R.E. Dove
Signaling & Communications:
Robert W. McKnight
Editorial Assistant: Wanda Brown

Washington, D.C. 20004,
National Press Bldg. (202) 347-1155
Washington Editor: Reid Beddow

Brighton, Sussex, England
8 St. George's Place (Brighton 685867)
International Editors:
John Levett Paul Goldsack

Advertising Sales Offices:
See Advertising Index

Railway Age, established in 1856, is indexed by the Business Periodicals Index and the Engineering Index Service. Name registered in U.S. Patent Office and Trade Mark Office in Canada.
Published semi-monthly by the Simmons-Boardman Publishing Corporation, 508 Birch St., Bristol, Conn. 06010.
Railroad employees' subscription rate, U.S. possessions, Canada and Mexico, $6 one year, $9 two years, all others $15 for one year, payable in advance and postage paid. To railroad employees elsewhere in the western hemisphere, $10 a year; in the eastern hemisphere, $15 a year. Single copies 60¢, except special issues.
Address all subscriptions, change of address and correspondence concerning them to Subscription Dept., Railway Age, P.O. Box 530, Bristol, Conn. 06010.
Change of address should reach us three weeks in advance of next issue date. Send old address with new enclosing, if possible, your address label. Post Office will not forward copies unless you provide extra postage.

Member of

Circulation Dept.: John Rogers Director of Circulation, 350 Broadway, New York, N.Y. 10013. POSTMASTER—SEND FORM 3579 TO P.O. BOX 530, BRISTOL, CONN. 06010.
Printed at the Hughes Printing Co., 34 North Crystal St., East Stroudsburg, Pa. 18301. Second-class postage paid at Bristol, Conn., and at additional mailing offices.

supporting
ASTRO

As the Publisher Sees It

ROBERT G. LEWIS

A MATTER OF LIFE—AND DEATH

Not many businesses could withstand a 127% increase in a basic cost over the next five years. LIFE couldn't. Admittedly, LIFE had other problems—importantly, the flight of ad dollars to television. But the 127% Postal Service increase was the death sentence.

So what has the Postal Service gained?

It still has to heat its buildings, fuel its trucks, pay its workers. There will be small savings, true.

But the big difference is that the Postal Service won't be getting nearly $10 million a year from LIFE any more.

Cutting off income without a commensurate saving reminds you of the famous cartoon of the two trains racing towards each other on a single track. What can you say of such a collison course but: "That's a heck of a way to run a post office."

It's not only the higher and higher cost of mail service; it's also the lower and lower quality of the service. If you assume a continued decline in mail service and project it, you arrive at a day not too far in the future when magazines will reach their readers so long after publication that their information will be hopelessly out of date.

Nearly 200 years ago, Congress established special second class rates to the end that education and enlightenment via magazines and newspapers might flourish.

Last month, LIFE died. And there isn't a publisher in America who doesn't look at the coming five years of rising postal costs and declining postal service with real alarm.

How would any sound businessman reply if a customer said he wanted faster delivery and was willing to pay a premium for it? He would say: "Great! That's the name of the game. When do we start?"

How would the Postal Service reply if a publication said it wanted faster service and was willing to pay a premium for it? This is not a hypothetical question. I know. RAILWAY AGE asked it. Once with the old Postal Department, several times with the new Postal Service. What was the answer? "We can't do that."

23,000 READERS, 23,000 VOTES

After all, I'm just one voter. But RAILWAY AGE has thousands and thousands of readers (more than 23,000 copies of our most recent issue went into the mails).

Your Congressmen and Senators will soon be considering a bill proposing that the 127% postal increase be delayed until: 1) The Postal Service solves its reorganization problems. 2) It reaches its promised level of operating efficiency.

May we suggest you write your Congressmen and Senators that you hope they will vote for this important bill?

The editor's column in this issue is given over to the publisher for a message that we feel to be of extreme importance to the readers of all periodicals—including ours.

What could be more logical and convenient than rail anchors from CF&I? Rail anchors worthy of the reputation already enjoyed by our rail and accessories, including Hi-Si® rail and Hi-Cant® tie plates that are in the forefront of today's most advanced railroad construction.

You'll find out more when we announce the details of our new CF&I Hi-Guard™ rail anchors.* We'll tell you this much. Hi-Guard is going to keep our rail reputation securely in place. It's the anchor designed with the railroads in mind. CF&I, Pueblo, Colorado 81002.

*Patent pending

CF&I STEEL

CF&I Steel Corporation

Pueblo, Colorado — A subsidiary of Crane Co.

We serve you right— and have for 100 years.

Circle 4 on coupon page 41

RAILWAY AGE

JANUARY 8, 1973

FEATURES

State-of-the-Art car: Ready for revenue testing ..... p. 17
New equipment for Amtrak: How much? How soon? ..... p. 20
UMTA: New team, same ball game ..... p. 25
Rail transit/commuter car market at a glance ..... p. 27

Retaining gauge on curves: The L&N approach ..... p. 28
Hoosac Tunnel gets a new steel interior ..... p. 31

NEWS

ACF forecasts increase in car orders ..... p. 8
FRA tackles freight car utilization ..... p. 8
AAR reorganizes its board ..... p. 8
Machine-tool orders continue to rise ..... p. 8
PC gets OK to reduce crew size ..... p. 8
Court accepts rates/ecology question ..... p. 8
New York: One strike off, one on ..... p. 8
MLW delivers power for Canada's LRC ..... p. 9
UP will increase capital spending ..... p. 10
D.C. Metro at $1-billion in contracts ..... p. 46
Transit systems disclose spending plans ..... p. 46
CTA moves to trim deficit ..... p. 46
Monorail for Hartford? ..... p. 46
Auto-Train plans expansion ..... p. 46
Milwaukee Road commuters get funds ..... p. 46
'73 European transit tour planned ..... p. 46

OPINION

AS THE PUBLISHER SEES IT — A matter of Life—and death ..... p. 5
LINES ON LABOR — Who would have thought things would go so well? ..... p. 10
VIEWPOINT — Mr. Brinegar, Mr. Herringer, and Mr. Nixon ..... p. 50
WATCHING WASHINGTON — Fat City ..... p. 32

COVER

The UMTA/Boeing State-of-the-Art car was photographed for Railway Age by John Proffitt.

DEPARTMENTS

Advertising Sales Offices ..... p. 49
Calendar ..... p. 44
Carloadings ..... p. 45
Letters ..... p. 48
Market Outlook ..... p. 45
New Products ..... p. 41
People in the News ..... p. 36
Piggyback Loadings ..... p. 45
Supply Trade ..... p. 36
Transit Personnel ..... p. 44

Short and Significant

ACF FORECASTS INCREASE IN CAR ORDERS

ACF President Henry A. Correa says railroads will order "between 55,000 and 60,000 new freight cars in 1973, an increase of between 15% and 20% over 1972." Correa said in a year-end statement: "It is my firm belief that in 1973 we will see a pickup in the capital goods industries. This increase augurs well for the railroad industry, since railroads move more capital goods than other modes." Correa added that his forecast of increased car orders does not take into account the probability that Congress in 1973 "is likely to take some favorable action on legislation to help railroads."

FRA TACKLES FREIGHT-CAR UTILIZATION

The Federal Railroad Administration has awarded a $299,721 contract to Decision Systems Associates, a Rockville, Md., firm, to develop a computer model of a system for improving the allocation and management of freight cars. FRA Administrator John W. Ingram noted that "the average freight car moves loaded only about 7% of the time—the remaining time it stands idle in yards, at loading docks or in repair shops. . .The study will develop a computer model to improve the empty car assignment process by the use of advanced computerized resource allocation programs. The development of such a model is an indispensable element in developing a rolling stock management and information system of the sort contemplated in legislation submitted to but not finally acted upon by the 92nd Congress."

COURT ACCEPTS RATES/ECOLOGY QUESTION

The Supreme Court on Dec. 18 agreed to decide whether a rail freight rate increase can have a major environmental impact. The case grows out of efforts, so far successful, by environmental groups to bar application of rate hikes on recyclable goods. The larger issue is whether ICC must comply with the Environmental Protection Act of 1969 which requires Federal agencies in their "major" actions to file a "detailed statement on the environmental impact" of such action.

AAR REORGANIZES ITS BOARD

AAR directors have drawn up and member roads have approved a new plan of board representation. The chief executives of the 15 roads paying the largest membership assessment to the AAR automatically become members. (Affiliated roads are treated as a single member.) Six other board members are to be elected—three each by two sub-groups of member roads. The sub-groups are based largely on geography and community of interest. The AAR president is ex-officio chairman of the board. Under the former plan, the board's 21 members included the AAR president, seven from the Eastern territory, eight from the West and five from the South.

MACHINE-TOOL ORDERS CONTINUE TO RISE

The machine tool industry set a new high in 1972 orders in November. That month's orders amounted to $163,700,000, according to the National Machine Tool Builders' Association. Of the November orders, $150,200,000 were received from domestic customer, 19% above the October figure and 117% ahead of November 1971 orders. Machine-tool orders, a key indicator of the state of the economy, totaled $1,253,850,000 in the first 11 months of last year. That was 63% above the figure for the comparable 1971 period. The industry's order backlog jumped in November to $923,000,000 from October's $856,000,000. The backlog last January was $584,100,000.

PC GETS OK TO REDUCE CREW SIZE

Penn Central on Jan. 12 will promulgate a new rule reducing train crews from a conductor and two brakemen to a conductor and one brakeman. The change has been approved by the road's bankruptcy court. Also, PC won the court's approval to defer certain wage increases that had been scheduled to become effective Jan. 1 (RA, Dec. 25, p.8). The now-deferred increases, affecting members of six unions, will begin April 1, simultaneously with previously scheduled increases for other unions. The six-union increases will be retroactive to Jan. 1. In another development, W. Willard Wirtz, one of PC's four trustees, resigned. No successor had been appointed by the court at presstime.

NEW YORK: ONE STRIKE OFF, ONE ON

The 95,000 riders who use the Port Authority Trans-Hudson (PATH) trains each day to move between New Jersey and New York won an eleventh-hour reprieve Jan. 2 when President Nixon created an emergency board to forestall a threatened strike by the Brotherhood of Railway Carmen. Not so lucky were the Long Island's 90,000 commuters and 80,000 other daily riders, who have been without service since Nov. 30, 1972, when non-operating unions struck the railroad in a dispute over parity of pay with the ops. Talks in the dispute were reopened last week.

RAILWAY AGE
NEWS

MLW delivers power for Canada's LRC

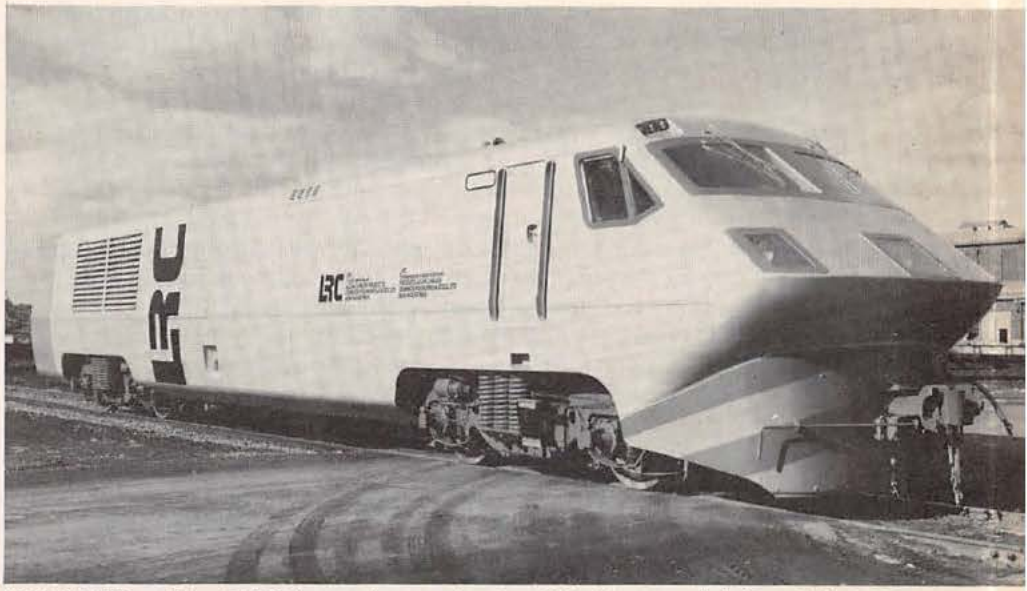
Completion of a low-profile 2,900-hp diesel electric locomotive marks the latest phase in Canada's effort to carve out a place in the market for high-speed passenger trains. This LRC (light, rapid, comfortable) project is the work of a Canadian consortium of Alcan Canada Products, Dominion Foundries & Steel and MLW Industries. The project is being backed by Canada's Department of Industry, Trade and Commerce which has supplied $2.5 million.

Earlier, the MLW plant in Montreal had turned out the low-profile 85-ft coach with an "active" suspension to assure passenger comfort while traversing curves at speeds higher than is possible with conventional cars. Powered banking, the most significant element in LRC engineering, is built into the coach trucks to permit speeds 40% higher than allowed for regular passenger trains. The goal would have LRC maintain intercity schedules at average speeds of 100 mph, or more.

While this would mean Canadian travel markets such as the 335 miles between Montreal and Toronto, in 3 hours 30 minutes, LRC backers are also looking to overseas sales and have approached Amtrak in the U.S.

While only the prototype coach (RA, Nov. 8, 1971, p. 29) and locomotive have been completed, LRC is designed to operate economically as a basic unit of one locomotive and five cars (1-5), or a pair of these units could be operated back-to-back in the push-pull mode as a ten-car train (1-10-1). Serious development commenced in 1967 and the prototype coach was completed in the summer of 1971. Unitl now, the coach has been operated behind a conventional Canadian National passenger locomotive for test. Following tests with the new locomotive alone at the MLW plant, it is planned to couple the two and for the first time put the full LRC concept to the test in regular mainline operation.

As conceived by its designers and backers, the LRC train will move passengers between major population centers and do it in a manner that will be competitive with interurban air travel when all factors of comfort, convenience, elapsed time downtown-to-downtown, and frequency of service are considered. The train is being planned to operate with a minimum of maintenance and service time on turnarounds. Because of its lightweight, compact and streamlined contour, the train will accelerate rapidly and maintain speeds in the 120-mph range with a comparatively small outlay of power.



LOW-SLUNG profile of LRC locomotive matches the 11-ft 9-in. over-all height of the LRC prototype coach with which this unit will soon be operating in test service.

While hydraulic banking has been tested in Europe and Japan, the low-profile LRC train features Dofasco's own patented "active" system. And, says R.N. Dobson of Dofasco, "the application of the new suspension system brings next-generation performance to railroading without pioneering esoteric technology. It is a case of using existing technology to the limit and of making the most efficient use of the operational safety limits inherent in all train designs."

The hydraulic banking tilts the coach as much as 10 degrees from perpendicular over its pair of two-axle trucks and is activated by sensors so that centrifugal forces are nullified. The lateral force on passengers in their seats is 0.05G, or less, while curves are traversed in the 100-mph speed range.

Power for traction at 120 mph is calculated at 2,000 hp at the rail for the five-car train. The light weight, small frontal area and low center of gravity of the locomotive are achieved through extensive use of aluminum in the body and a new design of depressed box underframe which allows installation of the engine at a level permitting the over-all height to be kept to 11 ft 9 in. above the rails (2 ft lower than conventional equipment). While modified and adapted for its special purpose, the LRC locomotive contains many of the features developed and tested by MLW Industries and incorporated in its basic M-Line road units. This includes the 12-cylinder Model 251 diesel engine and electric transmission. The engine, in addition to supplying traction power, also drives at constant speed a three-phase train services alternator which supplies power for all car requirements including heating, airconditioning and lighting.

Traction alternator output is rectified for the four conventional direct-current traction motors. While the locomotive suspension system will have ride characteristics similar to those of the passenger coaches, there is no banking system. According to MLW, the locomotive represents new-generation applications of known "state-of-the-art" railway technology and procedures.

Lines on Labor

GUS WELTY

WHO WOULD HAVE THOUGHT...

At this time a year ago, there was some cause for mild optimism about the course of rail management/labor relations in a new year. There was some cause—but then there had been "some cause" in years gone by, and somehow management and labor seemed to continue in the old ways—finding themselves on opposite sides on just about every question or problem that might come up. If 1972 seemed different at the start, it was probably because the industry had been able—after much travail—to work out a measure of work-rules relief. But, there were also the usual unknown quantities: The National Railway Labor Conference had a new chairman, Bill Dempsey—and how would labor's leaders take to this personable but frank-speaking youngish lawyer? The powerful United Transportation Union had a new president, Al Chesser—and he was coming on strong, making it clear that management had some changes to make if it expected labor to lend a hand with, for instance, legislative programs. Complicated work-rules agreements remained to be implemented, with UTU and with the Brotherhood of Locomotive Engineers—and which would it be, rough seas or smooth sailing? Finally, as at so many past year's beginnings, there was the fireman-manning dispute.

...THAT THINGS WOULD—OR COULD—GO SO WELL?

Then, the answers started coming. At the national level, Dempsey and the rest of NRLC and labor's representatives opened up a continuing dialogue. At the local level, implementation of the work-rules settlements ran a smoother-than-expected course. UTU's new president turned out to have meant what he said, when he talked of giving top priority to improving relationships. And the fireman-manning dispute was at long last settled—by the parties themselves, without crisis.

THE NEW "KEY": AN INCLINATION TO AGREE

Perhaps some indication of what has been happening can be drawn from the comments of NRLC's Bill Dempsey and UTU Vice President Tom Keating when they shared a spot on the Association of Railroad Editors' 1972 annual meeting program. On the basic work-rules dispute, Dempsey observed that "it seems to me we have good, solid ground for optimism about the direction in which labor relations are headed on this issue." Noting the past strains which the dispute had created, Keating put blame on both sides: "We kept feeling we were right and everybody else was wrong. This was true with labor as well as with management. I'm pleased to say that both have embarked on a new direction."

As for the fireman-manning settlement, Bill Dempsey heaped praise on UTU's leaders: "They cannot be too highly praised for the attitude they took in the disposition of that most vexing problem." Or, as Tom Keating put it, "I don't think the manning issue would have been settled without the new-found cooperation and mutual respect between us. But we did settle an issue that, Lord knows, we never figured would be settled." With change in attitude all-around, he added, "I think many of our problems have been diminished, and we have been able to show many more successes." To which nobody could add much more than this: Keep it up.

UP will increase capital spending

Union Pacific Corp., which was one of the big capital spenders in 1972, will be an even bigger one in 1973. UP's board of directors on Jan. 2 approved a capital expenditure program for the new year totaling $195 million, an increase of $40 million over the 1972 figure.

"The majority of the funds, $120 million, will be earmarked for the purchase of new equipment and roadway improvements for the Union Pacific Railroad," said Frank E. Barnett, chairman of the board and chief executive officer. He added that the remaining $75 million will go for expanding and improving Union Pacific's two other major areas of operation, natural resources and land development. A total of $63 million will be spent in the natural resources area, with most of the money going into capital improvements for the Champlin Petroleum Co. A total of $12 million will be invested in commercial and industrial land development operations in 1973.

John C. Kenefick, president of the railroad, said 1973 capital expenditures will include $68.6 million for new rolling stock, $2.9 million for miscellaneous work equipment, and $10.7 million for improvements to existing equipment. Track and other fixed-property improvements will get nearly $37.7 million of the total railroad outlays of $120 million.

The rolling stock program will include acquisition of 60 new 3,000-hp locomotives and 2,150 new freight cars. Included will be 300 box cars of various sizes, 500 insulated box cars of 70-ton capacity, 300 open-top hopper cars of 100-ton capacity. All will be purchased from commercial builders.

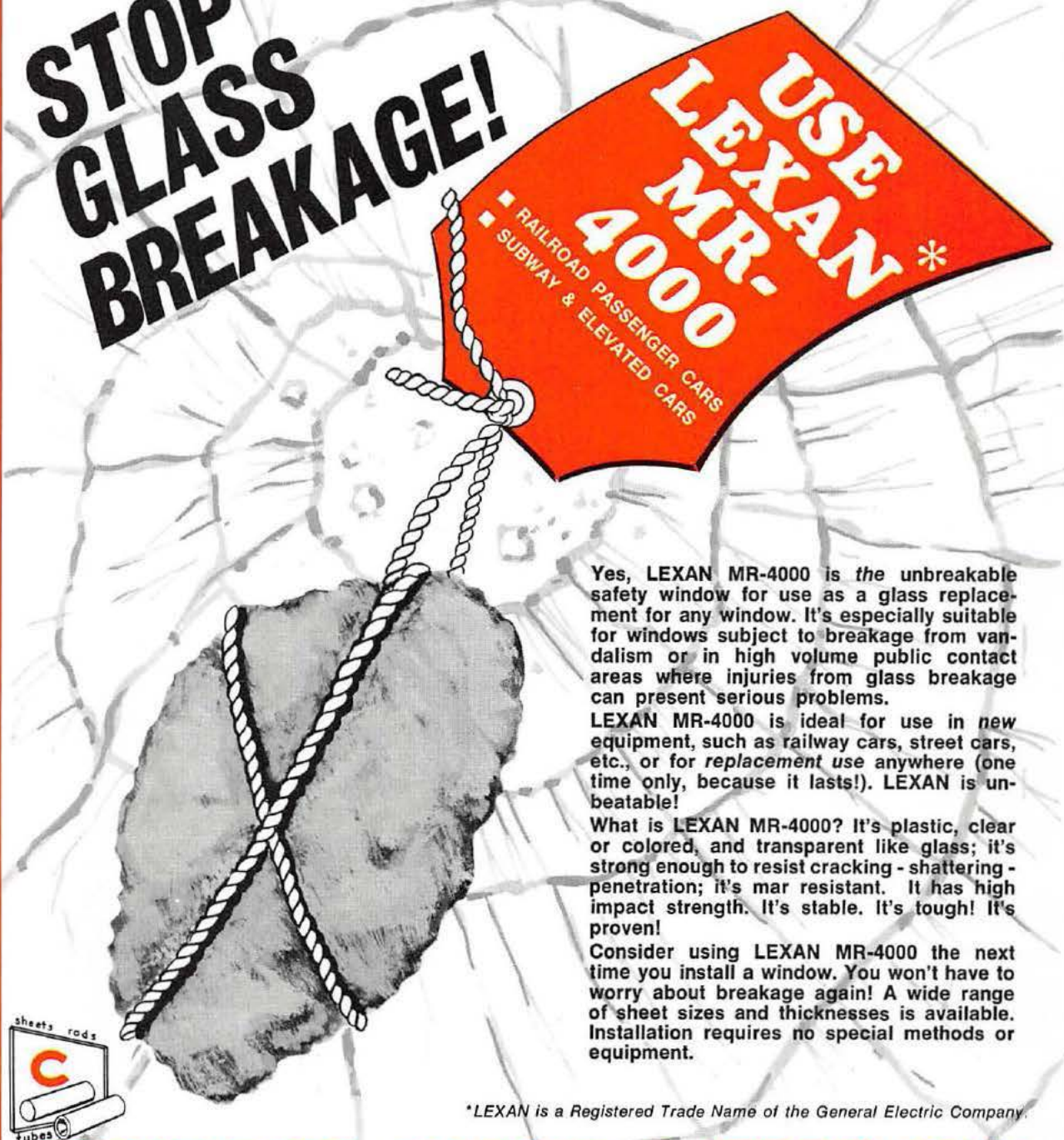
Company shops at Albina, Ore., will construct 600 70-ton box cars and 50 flat cars.

Fixed-property improvements planned for 1973 include installation of 215 track miles of new quarter-mile continuous welded rail, 45 track miles of curve relay, and 585,000 new crossties.

Roger S. Plummer, Jr., president of Champlin, said that more than one half of Champlin's $58 million for capital expenditures in 1973 will be invested in oil exploration and development.

Other investments will include a major pipeline expansion, increased storage capacity for crude oil at the Corpus Christi refinery, and improvements at the Enid, Okla., and Wilmington, Calif. refineries. Several million dollars will be invested on expanding and improving Champlin's wholesale and retail marketing program, according to Plummer.

STOP GLASS BREAKAGE!



Yes, LEXAN MR-4000 is *the* unbreakable safety window for use as a glass replacement for any window. It's especially suitable for windows subject to breakage from vandalism or in high volume public contact areas where injuries from glass breakage can present serious problems.

LEXAN MR-4000 is ideal for use in *new* equipment, such as railway cars, street cars, etc., or for *replacement use* anywhere (one time only, because it lasts!). LEXAN is unbeatable!

What is LEXAN MR-4000? It's plastic, clear or colored, and transparent like glass; it's strong enough to resist cracking - shattering - penetration; it's mar resistant. It has high impact strength. It's stable. It's tough! It's proven!

Consider using LEXAN MR-4000 the next time you install a window. You won't have to worry about breakage again! A wide range of sheet sizes and thicknesses is available. Installation requires no special methods or equipment.

**LEXAN is a Registered Trade Name of the General Electric Company.*

sheets rods C tubes

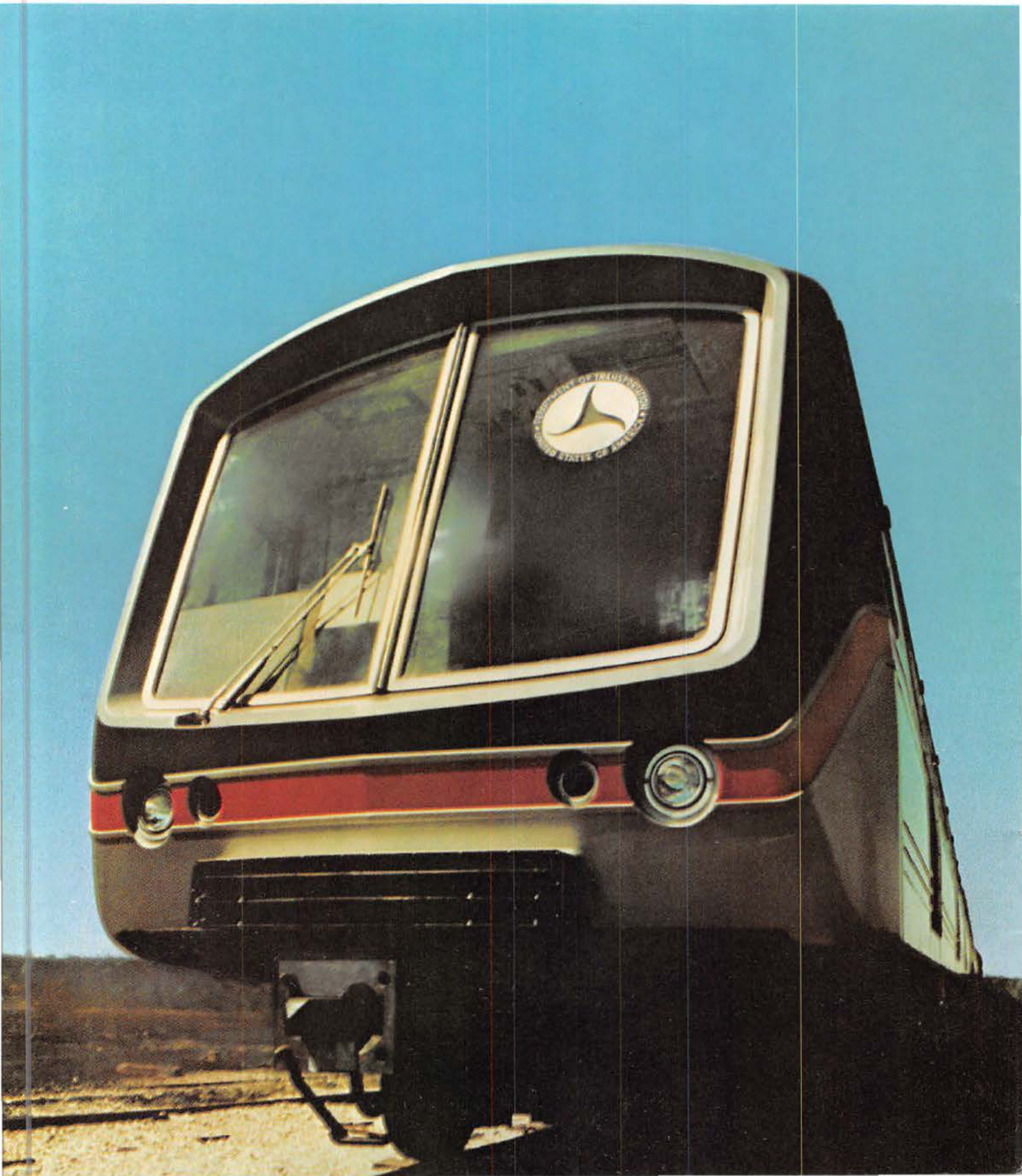
COMMERCIAL PLASTICS & SUPPLY CORP.

7330 Milnor Street ■ Philadelphia, Pa. 19136 ■ 215—331-8600

SEE YOUR YELLOW PAGES FOR THE COMMERCIAL PLASTICS SERVICE CENTER NEAREST YOU

Circle 31 on coupon page 41

TECHNICAL

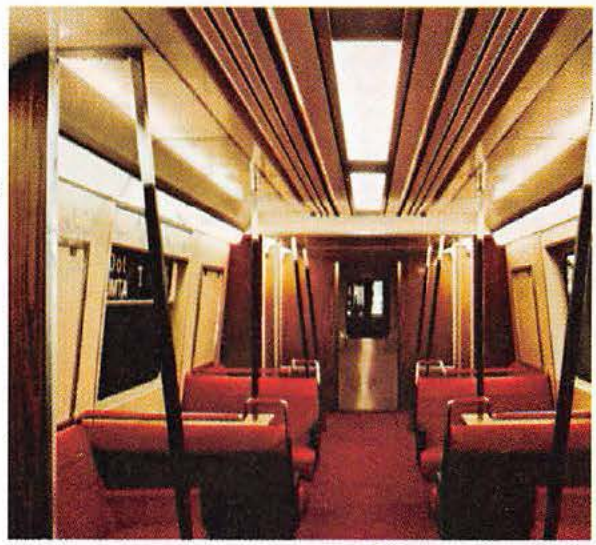


KNOCKOUT.

Tomorrow's salvation for commuters. The State-of-the-Art-Car... using today's stainless steels.

Urban rail transit should be a more pleasant experience in the future. . .thanks to the State-of-the-Art Car now being demonstrated in cities across the country.*

The Boeing Company's Vertol Division was selected by the U.S. Department of Transportation's Urban Mass Transportation Administration (UMTA) to develop "the best rail transit cars current technology can provide." The result: the State-of-the-Art Car . . . first step in UMTA's Urban Rapid Rail Program designed to make meaningful improvements in moving people.



Boeing selected the St. Louis Car Division of General Steel Industries to build the two State-of-the-Art Cars. They did . . . in a record eleven months. Some of the significant features of the new cars are high-flow capacity AC powered air conditioning system; solid state DC chopper control; plush interior; and stainless steel body construction.

"Stainless makes a nice looking, durable car," says Nelson Bohm, St. Louis Car's vice president of engineering. "We've built 6,000 cars since 1945 and we've worked more with stainless than any other car builder. Republic ENDURO® 14-gage stainless steel with a special finish was chosen for this job. Delivery dates and service were extremely important. When changes were required, Republic responded quickly and met the delivery dates."

Meeting the challenge isn't new to us at Republic Steel. We're the original Technical Knockout specialists. Whatever your needs in stainless . . . sheet, strip, bar, billets, special sections, tubing, pipe, wire, plate . . . we're ready to help you. Specify Republic stainless from your Steel Service Center and you can count on our involvement.

For the complete technical story on the State-of-the-Art Car, request this new Product Use Information Bulletin, Adv. 2304. Address Republic Steel Corporation, Cleveland OH 44101.

*The State-of-the-Art Car will be demonstrated in New York, Philadelphia, Boston, Cleveland and Chicago during 1973.

Republicsteel

Member Steel Service Center Institute

Circle 30 on coupon page 41

Camden to Phila. in 0:05 WABCO time

The Lindenwold Line is PATCO's rapid transit system connecting Philadelphia with Lindenwold, New Jersey, passing through Camden on the way. But it is more than that. It's fourteen and a half miles of automated speed. It's 38,000 passengers daily, traveling in modern, air-conditioned comfort.

The Lindenwold Line is parking lots full of cars that would otherwise be choking city streets.

WABCO is *control* at Lindenwold. We designed and built some of the most sophisticated communications and control systems in the world to assure passengers safety and performance.

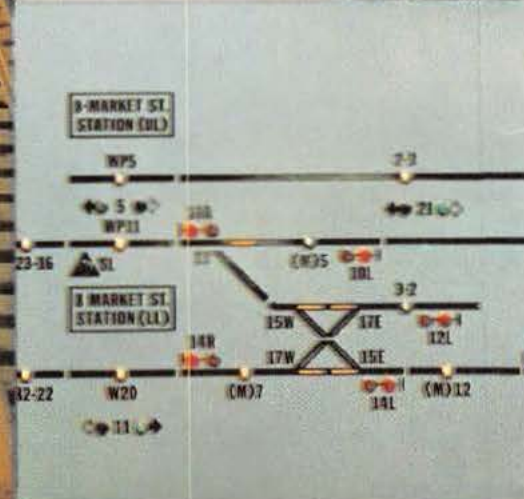
Start with a departure from the Lindenwold station. On a signal from central control, the train attendant pushes a button to close the door and another to start the train. WABCO Automatic Cab Signal System takes over and provides speed commands. The trains slow for curves, accelerate to 75 mph on straightaways and automatically stop, comfortably, at the next station.

The train attendant announces the station to passengers over WABCO's TRAINPHONE® Communications system. This same phone gives him voice contact with central control in Camden.

At central control, a WABCO illuminated control panel provides supervisory control of train operations and power distribution. This control, sending and receiving coded information through WABCO's FLEXICODE® Supervisory Control System, provides the on-time performance that has made the line famous.

There's a lot of WABCO equipment on the line including signals at interlockings, train detection, INDENTRA® train identification systems, electronically controlled brakes, automatic couplers and much more. But our major contribution was the design and engineering for this complex system.

At Westinghouse Air Brake Company we specialize in these kinds of systems and want to tell you about our experience and capabilities. Write: WABCO Transportation Systems Group, Signal & Communications Division, Pittsburgh, Pa. 15218.



TRANSPORTATION FROM THE WORD GO

The WABCO Transportation Systems Group is: Union Switch & Signal Division, Westinghouse Air Brake Division, WABCO Ltd., Cardwell Westinghouse Company, Freios e Sinais do Brasil S.A. In Transportation, WABCO is also 17 European operations and licensees and agents throughout the world.

WABCO

An American-Standard Company

Circle 7 on coupon page 41

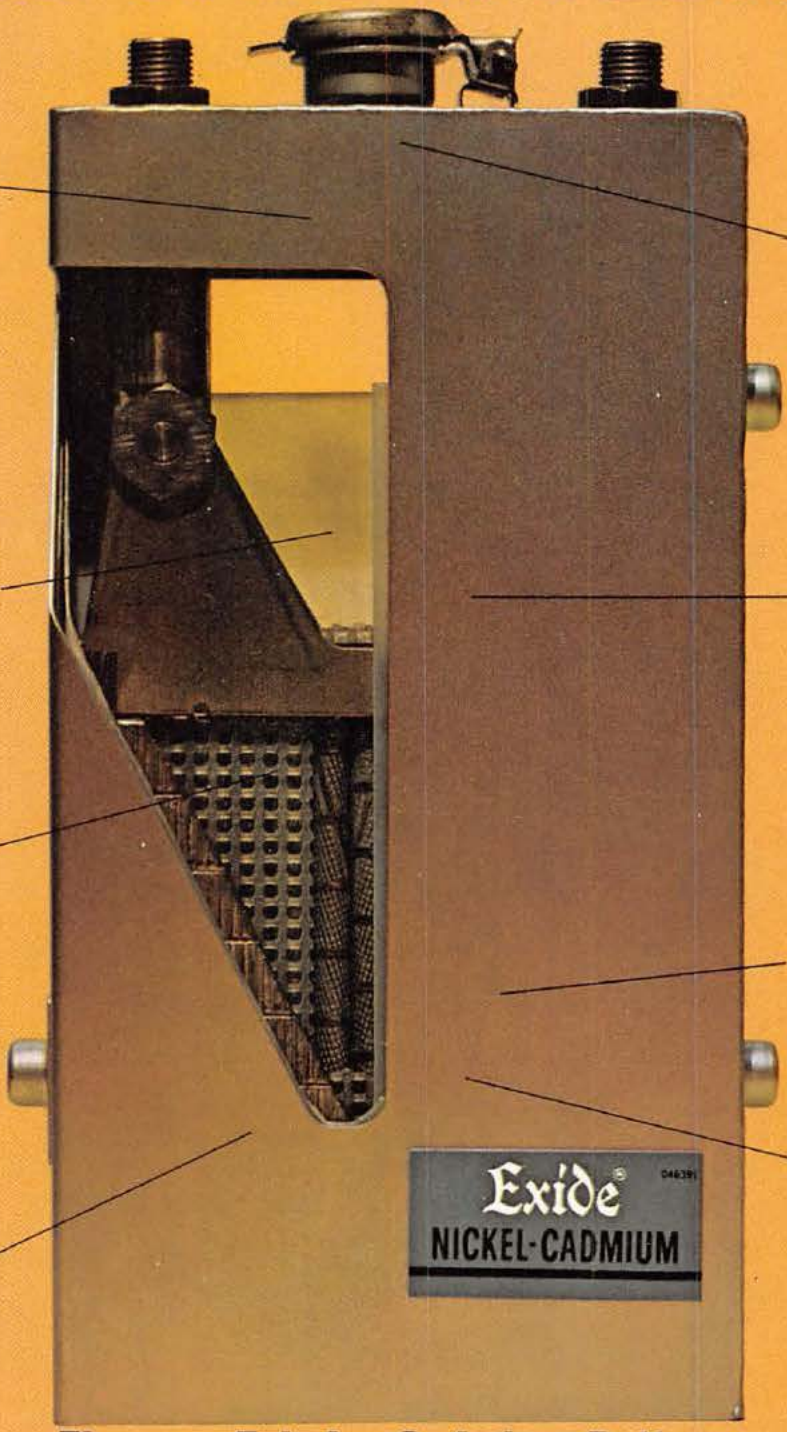
CUT IN
ATC
SET
IDENTRA

WESTBOUND
16TH ST.

CUT IN
ATC
SET
IDENTRA

CUT IN
ATC
SET
IDENTRA

Exide introduces the State-of-the-Art Battery.



Stands up to deep cycle service like a nickel iron battery

Delivers 25% more capacity between 1.10 and 1.00 volt per cell than nickel iron

Delivers the same performance as nickel iron at high temperatures

Designed for maximum service

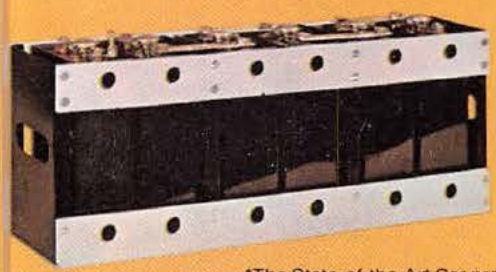
Stands loss 1/4 that of nickel iron

Needs minimum maintenance

Offers maximum life

Water consumption 1/4 that of nickel iron

The new Tubular Cadmium Battery.



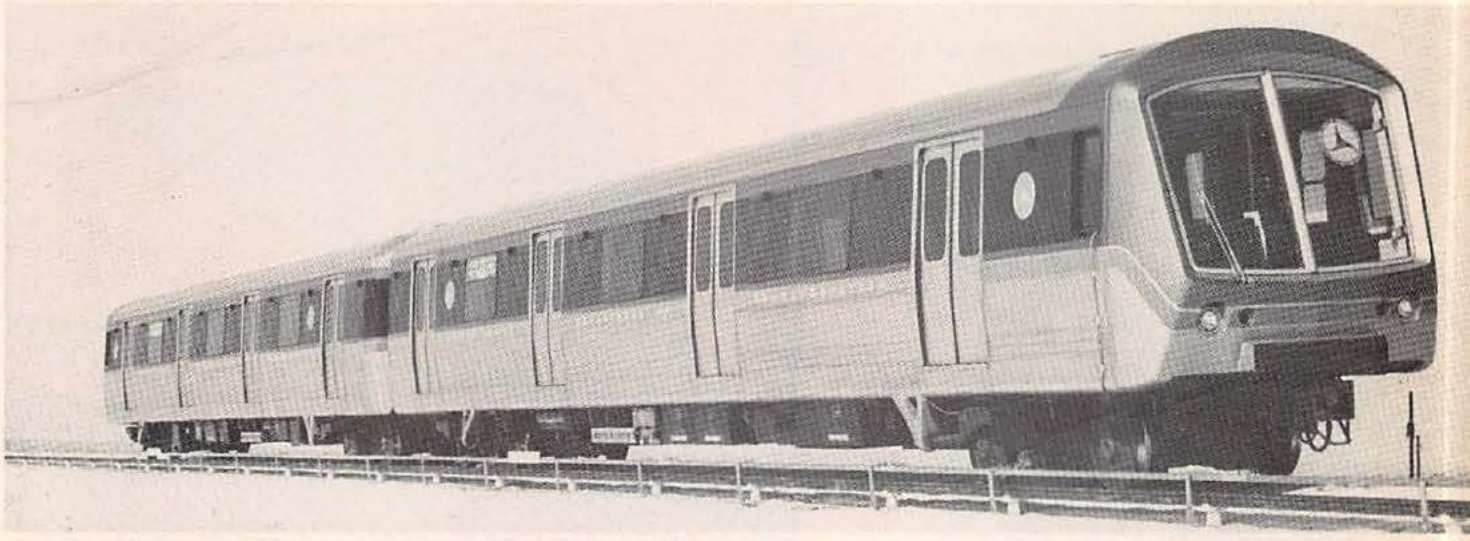
When the UMTA/Boeing* State-of-the-Art Car starts riding the rails, it will be riding with a brand new battery. □ The new Exide Tubular Cadmium Battery. □ The battery that offers the best features of both the nickel iron and the conventional nickel cadmium batteries. □ The State-of-the-Art Battery. □ Exide Power Systems Division, ESB Incorporated, Box 5723, Philadelphia, Pa. 19120.

*The State-of-the-Art Car project is sponsored by the U.S. Department of Transportation's Administration UMTA. Systems Manager for the project is The Boeing Company's Vertol Division.

ESB Exide

World leader in packaged power.

Now at Pueblo, Colo., the UMTA/Boeing SOAC will roll eastward in February for tests in New York, and subsequently Boston, Philadelphia, Cleveland and Chicago.



State-of-the-Art Car:
Ready for revenue testing

By FRED N. HOUSER, Mechanical Editor

"State-of-the-art" is a phrase that has become technical jargon in recent times. It describes the best of currently available, off-the-shelf technology. And that is exactly what is to be incorporated in the pair of state-of-the-art (SOAC) transit cars now undergoing testing under the Urban Mass Transportation Administration's Rapid Rail Vehicles and Systems Program.

The $2-million SOAC project is managed by the Boeing Vertol Co. It is the first phase of a three-year UMTA program scheduled to produce even more sophisticated rapid-transit vehicles known as ACT (Advanced Concept Train) cars.

● **Revenue tests scheduled.** Next month the pair of stainless-steel 75-footers are to be moved from the UMTA test facility at Pueblo, Colo., to begin revenue demonstrations on the Sixth Avenue line of the New York City Transit Authority. From New York they will go to Boston (Cambridge-Dorchester line); Philadelphia (Broad Street subway); Cleveland (Airport line); and Chicago (Skokie Swift). These operational demonstrations will give transit operators and their passengers a chance to evaluate the latest in transit cars and car subsystems. Also, extensive voltage measurements are to be made on the five properties to detect transients that could complicate the operation of even more advanced solid-state propulsion systems.

Currently, UMTA is making its appraisal of ACT-1 proposals, submitted in October 1972, with a go-ahead expected for a pair of cars in mid-February. Contracts for this design competition were awarded to Garrett AiResearch, General Electric, LTV, and Rohr. The winner of the carbuilding contract is to complete the pair of ACT-1 cars so they can be delivered to the Pueblo test site in October, with subsequent test-track and revenue service on about the same schedule as that for the SOACs.

● **Phase 2.** ACT-1 has been described by an UMTA spokesman as "a no-holds-barred opportunity to produce the better 'mousetrap,' constrained only by transit property requirements for a 600-volt DC power source, standard track gauge, and a 'clearance envelope' combining the physical constraints of all five systems where revenue tests are to be conducted."

While the ACT-1 contract is being awarded, UMTA and Boeing will begin a selection of potential suppliers for ACT-2. This is a component-improvement program which is to produce advanced subsystems for test and evaluation. This stage will not involve the building of new carbodies. It will call for installation of alternatives such as new propulsion systems on the ACT-1 and SOAC cars. Ultimately, there would be additional cars in ACT-3 which would incorporate the advanced subsystems as original equipment.

Already some ACT-2 work is going ahead, independently funded. Typical of this is the Wabco AC propulsion being tested on the Cleveland Transit System and the Garrett stored-energy system being applied to the pair of New York R-42 cars at Pueblo for testing on the UMTA loop and then demonstration in revenue service in New York.

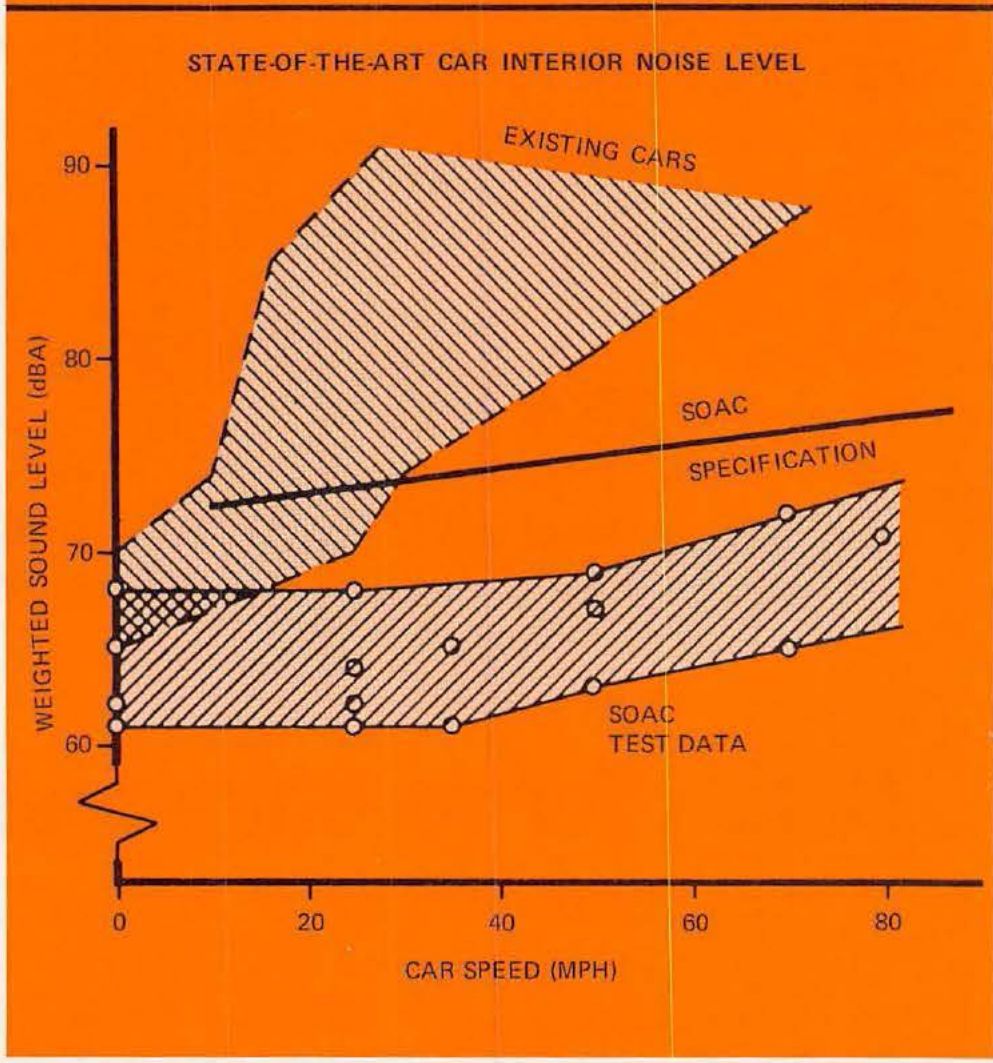
Starting in June 1971, UMTA established its Rapid Rail Vehicles and Systems Program, originally a three-year, $10.5-million project to produce cars which would be as comfortable, reliable, safe and economical as possible. Boeing-Vertol was selected as systems manager with five tasks:

—Observe the prototype car program of Bay Area Rapid Transit;

—Manage production of the SOAC

◀Circle 8 on coupon page 41

Noise control goals have been significantly surpassed



demonstration cars;

—Manage the design competition leading to the ACT-1 cars;

—Manage the ACT-2 component development program required to move from first-generation prototype ACT-1 cars to second-generation ACT-3 revenue cars;

—Plan for the ACT-3 revenue demonstration.

UMTA partially funded the BART ten-car prototype program. Boeing sought to identify possible improvements for SOAC and goals for ACT-1 as debugging proceeded on BART's Fremont line. The BART car has served as the baseline for definition of state-of-the-art technology and UMTA specifications have, in effect, called for "BART, or better."

● **Best of both worlds.** Recently, now-resigned Urban Mass Transportation Administrator Carlos C. Villarreal spelled out the role of the systems manager in a development program such as SOAC. "It is not a vehicle, but a vehicle system over which a perspective must be maintained," explained Villarreal. He called attention to UMTA's own small in-house staff, noting that its efforts can be significantly multiplied with such a manager. Villarreal said the base of industry participation is broadened with many new sources of expertise in problem solving.

Transportation Secretary John A. Volpe, at the Pueblo SOAC roll-out in October 1972, added that "we have combined the best in aerospace management techniques with traditional know-how to obtain the best of both worlds." It was at that time that he called SOAC "not a missing link—but a replacement link." While San Franciscans may call rapid transit new, explained Volpe, "you won't hear that in New York, or Boston, or Philadelphia, Chicago or Cleveland. Despite incremental improvements over the years, the subway systems in those cities still represent—to a great degree—the technology of the past. Our challenge in building these SOACs was to incorporate every new change we could think of, and then go out and think up a few more."

● **Battle won, war lost.** Just as the BART car has served as the baseline for the SOAC development, SOAC is now expected to serve as the standard of excellence and attractiveness from which UMTA can advance to the next generation of transit cars. In the light of compliments heaped on St. Louis Car by both UMTA and Vertol for the design and delivery of SOAC, it is enigmatic that this old-line builder of commuter, transit and light-rail (street) cars will not participate in any future transit car development or production. In effect, SOAC has been the valedictory for St. Louis Car, despite the fact it has produced more than 6,000 transit cars since World War II.

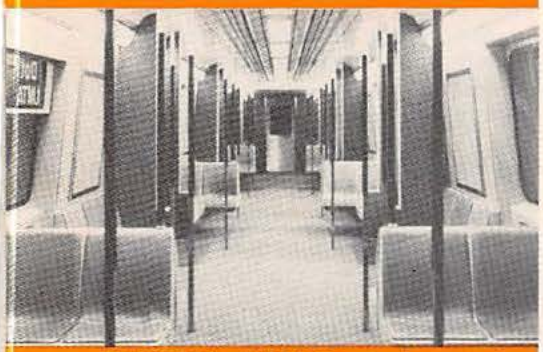
Just before the end of the year, the board of General Steel Industries announced that both its St. Louis Car and Castings Divisions were being liquidated because of continuing losses and bleak market prospects. GSI's Castings Division produced the new, lightweight truck which is a major factor in the quiet ride of SOAC, a fact confirmed by instrumented operation on the Pueblo test track. In just over 15 years, ACF Industries and St. Louis Car have ceased all passenger car production and Budd has terminated its production of self-propelled cars and continued its Railway Division only on a vastly reduced scale. Old-line Pullman-Standard and two newcomers, General Electric and Rohr, have gotten all recent orders for transit and commuter equipment.

● **Two configurations.** St. Louis Car teamed with Sundberg-Ferar, industrial designers, in styling the passenger-oriented SOAC vehicles. There are two different configurations—a 64-seat version for longer haul, suburban-type service and a slightly more spartan 72-seat car with greater floor space for standees, typical of full-scale rapid-transit operation.

The two carbodies are duplicates. Each is made entirely of welded, corrosion-resistant stainless steel, supplied by Republic Steel. According to Richard Purvis, project manager at St. Louis Car, the advantages of stainless include its brighter finish, minimum maintenance and easier repair. The cars have molded fiberglass ends.

The lightweight GSI truck has a cast

AIR-SPRING TRUCK also has rubber chevrons at the journals to serve as primary suspension. Garrett motors drive through helical gearing.



CARPETED INTERIOR is feature of SOAC No. 2, which is designed for urban service with 72 seats and large floor area for standee load.

CHOPPER CONTROL, utilizing thyristors, supplies variable voltage, with minimum losses, to separately-excited, fully-compensated series DC traction motors.

alloy-steel frame isolated from the axles by rubber-chevron primary springs which eliminate metal-to-metal contact from rail to carbody. The air-bellows secondary springs control carbody leveling and further isolate rail-generated noise. In tests at Pueblo, the SOAC car interior was found to have a noise level of 63 decibels at 40 mph. The NYCTA R-42 cars operating on the same track at the same speed showed a 90-decibel level.

Each truck is fitted with a pair of 175-horsepower DC traction motors driving through double-reduction helical gears and elastomeric couplings. This AiResearch propulsion system uses a solid-state chopper with thyristors to vary voltage between third rail and the motors. The control also utilizes the motors in dynamic braking for retardation, supplemented by pneumatic tread brakes capable of providing full emergency stops with electropneumatic analog control.

SOAC cars—Partial List of Suppliers

Adams & Westlake	Sash
American Seating	Seats
O.M. Edwards	Doors
Ellcon-National	Stanchions
Exide, ESB	Batteries
Garrett AiResearch	Propulsion, braking, control and auxiliaries
Grimes Manufacturing	Lighting
General Steel Industries	Trucks
Libbey-Owens-Ford	Windows
Motorola	Radio and intercommunication system
Ohio Brass	Couplers
Republic Steel	Stainless steel
Ringsdorf Carbon	Pantograph
Safety Electrical	Heating and air conditioning
Sallee Carpet	Carpeting
Sound Systems	Public-address system
Standard Steel	Wheels and axles
Swedlow	Windshield
Vapor	Door operators
Walton Products	Electrical couplers

● **Interior arrangements.** Durable, vandal-resistant materials have been featured in both cars. However, the bold use of carpeting, wood tones and harmonizing colors aims to create a feeling of the passenger's importance. The high-density car has seats for 72 of molded fiberglass fitted with upholstered cushions. The other unit accommodates 64 in fully cushioned, upholstered seats. In addition to full carpeting of floors, car interiors feature such experimental arrangements as carpeting on the wind-screens at the doorways and retractable ceiling handholds.

In addition to the SOACs, a full-size, portable mockup was constructed by Sundberg-Ferar. It was exhibited at Washington's Dulles Airport during Transpo 72 and will be displayed at prominent locations in each demonstration city. The mockup is of the plushier suburban-service car. Ultimately, the mockup will be installed at the Pueblo Test Center where it will be converted into a noise and ride-quality simulator for future research.

Display of the SOAC mockup excited some press comment about its vulnerability to vandalism in urban service. UMTA concedes that the weakest feature of SOAC could be just that. However, says an UMTA spokesman, "since SOAC represents the current state-of-the-art, it is just as susceptible and resistant as the best available technology can make it. . .Why should we penalize the 99% of the riding public who are entitled to a pleasant environment at the expense of the 1% who cause trouble?"

● **Auxiliary systems.** All of the car auxiliaries are powered by alternating current supplied by the single-shaft 125-kw Garrett Motor-alternator. The use of AC results in smaller motors, lower weight, improved reliability and lower costs. The AC-powered auxiliary systems include heating, ventilation and air conditioning; air compressor; equipment ventilation fans; battery charger; and lights.

The pair of Safety 8-ton air-conditioning systems, independent of each other, are separately controlled by individual temperature-control panels and thermostats. The two units take less volume than a single DC-driven system and weigh less. Reliability is also enhanced, according to Vertol engineers. The HVAC system can maintain a maximum interior temperature of 75 deg F over an outside temperature range of minus 15 to 105 deg F.

The recessed, overhead fluorescent lighting provides a high level of glare-free illumination for passengers. Windows are glazed with dual, laminated, tempered safety glass tinted to protect against glare. Windshields are designed for high impact resistance against flying objects.

The SOAC car, 75 ft over couplers, has a width of 9 ft 9 in. It is designed to traverse a minimum track radius of 145 ft. While it was designed for a speed of 80 mph, it has reached 91 mph on the Pueblo test track. Acceleration is 3 mph per second.

Before entering revenue service, the SOACS are to be fitted with Standard Steel Acoustaflex wheels which are expected to reduce the noise level in the car. After the operating demonstrations, SOAC will return to Pueblo for retrofit with the advanced subsystems which may then be ready for test under the ACT program.

● **ACT advances.** Among the concepts proposed for the ACT cars are new carbody structures, advanced propulsion systems, new suspensions, advanced subsystems such as braking and air conditioning, improved reliability and maintainability, vandal-resistant materials, improved crashworthiness and safety, and improved usefulness for elderly and handicapped persons.

"Our four ACT teams have had to work very had to surpass SOAC since, in fact, it is already a very advanced car," explains an UMTA spokesman. "SOAC is also noteworthy in that it was brought from design through production in less than a year." ■

Moving People '73

New equipment for

When aerospace executive Roger Lewis assumed the presidency of Amtrak, there was widespread speculation that he had been hired on to preside over the most costly funeral in U.S. transportation history. But in recent months, Amtrak has been showing unmistakable signs not only of life, but of a long life; and its salty, soft-spoken president has been acting like anything but an undertaker.

In his spacious office in Amtrak's modern, bustling headquarters high above Washington's L'Enfant Plaza, Lewis talks not about cutting service but expanding it; not about scrapping trains but buying new ones; not about cost-cutting but spending.

To show that he means business, Lewis a few days ago announced that Amtrak is leasing, with option to buy, two five-car turbine powered trainsets from the French manufacturer, ANF-Frangeco. At least four U.S. companies—Pullman-Standard, General Electric, Rohr Corp. and Fairchild—have been talking with ANF about licensing arrangements for building new French-designed turbos in the U.S. Amtrak is also buying two four-car Turbotrains built for Canadian National by United Aircraft and made surplus by a restructuring of the Turbo service soon to be reintroduced in Canada. The French and Canadian equipment will go into service in the Chicago-Milwaukee and Chicago-St. Louis corridors next summer. (Amtrak will also, on Jan. 23, exercise the Department of Transportation's option to buy two UAC-built Turbotrains which DOT has been operating under lease between New York and Boston.)

The two French trains, if the option to buy is exercised, will cost $2.3 million each. The two CN trains together will cost $4.1 million. The two New York-Boston trains to be purchased from UAC will cost $2.3 million each.

Earlier, Amtrak had ordered 40 3,000-hp diesel-electric locomotives from EMD, at a cost of $18 million, for delivery by the summer of 1973.

Lewis disclosed to Railway Age last week that Amtrak is also moving ahead on longer-range plans to replace its fleet of conventional, locomotive-hauled equipment. Amtrak engineers are now drawing up a specification which could go out to carbuilders this year.

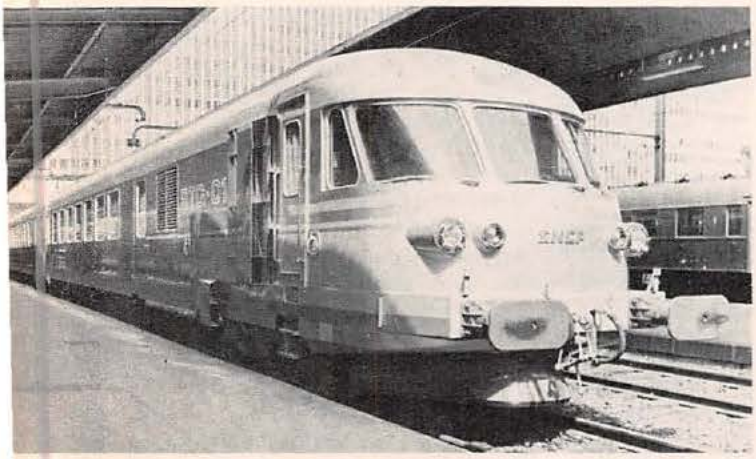
All of this is not to say that everything is rosy for Amtrak. Lewis still describes his job as being something like "trying to move a tremendous mass of molasses with g.d. toothpick." While ridership is up on a system-wide basis, losses remain high. (Though the gap between income and outgo is beginning to narrow: In the first nine months of 1972, Amtrak took in $122,510,897 which was $2,349,146 more than budgeted; expenses amounted to $211,037,618, or $1,913,101 more than budgeted; with the result that the net operating deficit of $88,526,721 was $432,045 lower than anticipated.)

But on the whole, optimism rides high at 955 L'Enfant Plaza North. This optimism was reflected in a recent interview in which Lewis discussed Amtrak's future, with emphasis on re-equipping. Excerpts follow:

Turbo equipment: "I am a here and now man about this railroad. Many people can tell me what we should be doing in 1990; and I'm not saying that shouldn't be on people's minds. But I have no faith that we will get to that glorious future if we don't move on a most rapid basis tomorrow and the day after tomorrow.

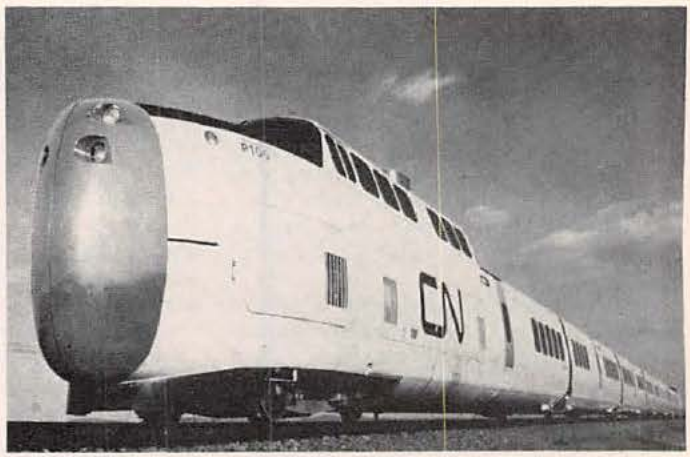
"Now the place that would be most responsive to improvements in equipments would be the corridors. Roughly 70% of our boardings come from 7% of our track. So that's where the first money ought to go. We've got the electrified Metroliners, but we've got a lot of track that is not electrified. So the only way it seems you're going to get increased performance is to go for low center of gravity trains, probably turbine-powered. Now I don't want to have a big competition and wait until I'm an old man and get something here in 1979; I want to work with what's available. The turbos are available.

"I want to make limited commitments because I am not sure that the equipment available today for early



COMING FROM FRANCE. . .

Two ANF-Frangeco trubotrains, similar to one above, will be leased with option to buy. The French builder is now discussing licensing arrangements with U.S. carbuilders.



. . .AND FROM CANADA

Amtrak is also acquiring two four-car trainsets built for CN by United Aircraft. Like the French trains, these turbos will go into corridor service in the Chicago area next summer.

Amtrak: How much? How soon?

delivery is technologically modern. There just hasn't been enough work done, and I don't want to go ahead and buy the next 100 years worth of equipment until we know better what it is. So I want to make commitments that will buy us some time and get us into action right away.

"Good train equipment, like good airplane and good submarine equipment, is more development than invention. You run it, you bust it, you fix it; you run it, you bust it, you fix it; and finally you've got a good piece of equipment.

"I want to get this railroad into the future just as fast as I can, but I don't want to make dumb mistakes just to hurry.

"Yes, we're still looking at British Rail's Advanced Passenger Train, but that's further down the road."

Locomotive-hauled equipment: "I'd be a lot happier if we had all our heavy overhauls completed on the 1500 cars we bought from the railroads. That's our first priority but we're not going to have the overhaul long. We've got some fellows drawing a spec right now for a replacement car. I'd like to start a replacement program as soon as we can. This car will have a higher level of comfort, a far better ride. How many? It certainly won't be 10; it won't be 1,000.

"Of course, until we get a spec out and get some responses from manufacturers, we can't buy anything, because the last cars were built about 15 years ago. I hope to have the spec out in 1973. No—I can't say when we might get the first of these cars. I want to be sure that the replacement car is so good we can standardize on it. There are big benefits to getting standard equipment; we can move it around, and we can follow the sun. That's something we couldn't do before because we had about 20 railroads each of which had a purchasing department and a chief engineer and a favorite manufacturer. About the only thing they had in common was they were damned if they were going to buy anything that anybody else bought."

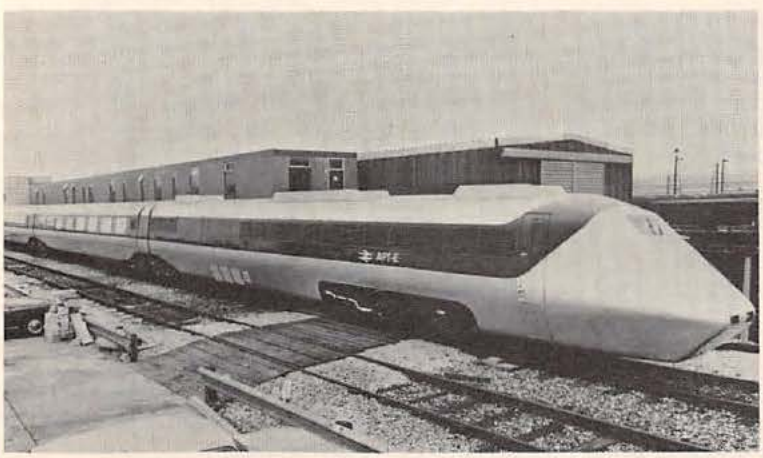
[As of Dec. 22, 1972, 595 Amtrak cars had gone through the shops. By July 1, 1973, another 400 cars will have been shopped, about 80% of them receiving heavy repairs—e.g., new wheels, trucks, air conditioning. Eleven private and railroad shops are being used for this work, including Penn Central's Beech Grove (Indianapolis) shop, Santa Fe's Topeka shop, the Pullman shops, and, a recent addition, the Rohr shop at Chula Vista, Calif.]

The carbuilders. "For the first year I was around here, I was a pariah; nobody ever came to see us with an idea about anything. They didn't think we were going to last, or they didn't think we had any money, or if we had any money we weren't going to spend it; they just figured we were a waste of time. But they're all coming around now.

"We're not going to jump; we don't have to jump until we know we're going to get something good. This is an open equation. What can you get and how soon and will it be worth starting a replacement cycle sooner or later?

"In 1955 the first jet transport was bought. That was just about the time when the last intercity passenger cars were being built. So the whole jet experience and technology has come along. We didn't get a man into space orbit until six years after the last passenger car was built. Look what's happened to metals, and what we can call dynamic analysis, and so forth. And in the meantime the engineering organizations that were developed for passenger trains have disappeared. It would be quite wrong to think that overnight the carbuilding industry can be recreated. Managements of these companies have all got to get hungry for this business; put on that gifted designer; go back and get the guy that left to work for somebody else."

Track. "We recognize that a good ride, a fast ride, is the result of a marriage between the car and the track. We have excellent Metroliner track in some places; the Penn Central spent a lot of money on that line and it's damned good. Maybe all we've got to do



STILL DOWN THE ROAD: THE APT. . .

Amtrak remains interested in Britian's Advanced Passenger Train, but the APT is still in the prototype testing stage—and as Amtrak President Lewis puts it, "I'm a here-and-now-man."

. . .AND NEW CONVENTIONAL EQUIPMENT

Amtrak is now drawing up a spec for conventional, non-corridor equipment. Among the last conventional trains to appear on the U.S. scene was Santa Fe's "El Capitan" (1957).

is work on car supensions to take advantage of that. But in the United States, there are a hell of a lot more freight trains on the track than passenger trains, which is not true in Europe.

"Of course, track can have only one manager, and that generally is the man who owns it, not the man that rents it.

"We do recognize that track is going to have to have some money spent on it—that track and truck combinations need more engineering development.

"Certainly in the very high density areas, the country—*the country, not Amtrak*—has got to look at how it wants to distribute its resources. Investment in track is only different from investment in an airport or a highway because somebody else owns it. And that simple fact of history is not going to stand in the way of the American people. We and a lot of other people are beginning to think about it, and I would think that patterns of support for improvements are going to emerge—though I can't predict when or where."

Amtrak's "profitability" mandate: "The Act says we are to employ innovative methods and the best management techniques to upgrade railroad passenger service and that we are to do this for a profit. I take that to mean a directive to a businessman, not to a hatchet man or a guy who is going to try to make it by turning the lights out at night. I take that to mean that you are to make your business decisions looking to ultimate profitable operations.

"You start by trying to reduce your losses. And you reduce your losses, in this business, not by cutting your costs but by increasing your revenue. To make money, you have to spend money and provide equipment; you have to improve your right of way, you have to advertise, you have to hire salesmen, you have to pay a commission on credit cards, you have to get into the travel business. For quite a while you're going to be spending more money than you're going to be getting back. But there's no other way to build a business. I don't expect to do opportunistic things that might save a little money today but will be costly to our development. That's our policy. I have stated it around the government, and nobody's shouted me down on it. So that's it."

Modal competition. "We don't have to de-invent the airplane to build Amtrak. We don't have to run the internal combustion engine off the bridge and into the sea. We have a population that's grown 100 million in the last 50 years and it's going to grow 100 million more in the next 30. There's no longer a question of it being air or rail or highway. It's a question of which of the public services can be done best by each. And that doesn't mean exclusively. I like the idea of taking the train to Chicago, and if I've got to get home for dinner coming back on the airplane. An airline president told me in New York the other day, 'I really use the Metroliner. It's the only way to go to Washington.'

"Instead of bitching about the other fellow, what we've got to do is improve our service so that it is an attractive option.

"Right now 1% of intercity transportation is by rail, 2% is by bus, 8% or 9% by air, and the rest by automobile. I'd love to see us get 2% and the bus guys get 4%. We ought to make inroads into the air on the short haul. And I'd like to see the automobile go down 15 or so percentage points.

"One of the things that struck me when I got to Amtrak was a sort of isolation and withdrawal. People talk about hostility; I never saw any of that. But I did see withdrawal. And they weren't in the travel industry. They didn't have paid commissions, they didn't have credit cards, they didn't have rent-a-car deals.

"Instead of just being petulant, and wishing to hell it was 1921, we consciously reached the decision that the travel industry is a fact of life and we want to be in it. We compete with some of these fellows sometimes and work with them at other times."

"To make money, you have to spend money and provide equipment"
—Amtrak President Roger Lewis

"Auto-train west." "We've got to sort that out with Southern Pacific. We want to run the service [carrying autos and their passengers on the same train, between Seattle and Oakland and perhaps to Los Angeles]. SP says they can't. We filed suit in U.S. District Court last Oct. 26. SP is the defendant, but the issue is a California law that prohibits carrying freight cars on passenger trains."

A Mexican connection. "The route we have picked is St. Louis, Little Rock, Texarkana, San Antonio and Laredo; but it will cost about $4.1 million and we haven't got the money yet. As an interim arrangement we plan to cut off a section of the 'Texas Chief' at Temple and run it through Austin and San Antonio to Laredo."

What happens next July 1? "We're going to take a good look and on July 1 if we've got something that's way, way out after a real drive—and I'm not talking about losing a few per cent; I'm talking about places where the cost might be four or five times the revenue—then the railroad can't stand that. But that isn't the point. Money is involved, of course, because that's the way you measure it. But the real thing will be that people aren't sufficiently interested to use the service. It's a matter of whether people between two points find a train attractive. After a reasonable period of promotion and offering the service, if they haven't begun to use it it's very unfair to penalize the rest of the system and continue to run it just because some people like to see a train."

The transcontinentals. "I think the transcontinentals we've got are all good and have good potential. I'd rather not speculate on what might happen July 1, but I could comment that contrary to popular opinion our worst routes are not our transcontinentals. We're packing 'em in on every one of those services."

Are railroads cooperating? "It's very unwise to generalize. We deal with 13 operating railroads and we have 13 different relationships. Some are very cooperative and very effective. Some are very cooperative and not effective. Some are somewhat uncooperative—and effective. I would like to put this straight: I do not really detect any hostility. They are big organizations; they've got a lot of other things to do. Sometimes it takes them longer to get things done than we like; we have a small organization here. We decided very early we were going to have to approach it problem by problem, railroad by railroad. In the early days there was quite a lot of getting acquainted necessary on both sides. By and large we have a better relationship now because we understand each other better. I have to tell you that every time we get into a real problem, the railroad members of the board are just as aggressive, and in some cases more aggressive, on the side of progress than some of our other members. Now that doesn't mean that when we're negotiating with that man about his railroad that he isn't in there doing the best he can for his outfit, because that's pretty normal.

"I think there's beginning to be some confidence and credibility which is producing what is really important, a better railroad service." ■

Do someone a favor!

Who? *Someone you'd like to see get ahead!*
How? By his signing up for a one year study course to update his shop craft skills. Courses available include:

1-Year Skill Improvement Program for CARMEN: safety, car details, inspection, interchange rules;

1-Year Skill Improvement Program for MACHINISTS: locomotive inspection, wheels, air brake equipment, locomotive maintenance;

1-Year Skill Improvement Program for ELECTRICIANS: wiring diagrams, electronics, locomotive electrical maintenance.

Cost is $6.00 per month for twelve months ($72.00 total). Two lessons are sent each month. We send a progress report to the railroad on request. Upon satisfactory completion of the course, a diploma is issued.

Many other training programs are available and can be tailored to meet particular needs. Coupon will bring information.

Pass this along to someone you'd like to help...

RAILWAY EDUCATIONAL BUREAU
1809 Capitol Avenue, Omaha, Nebraska 68102

☐ Please enroll me in the _____ course. Here is my check for $6.00. I will pay $6.00 per month until the course has been completed ($72.00 total). I understand I may cancel at any time.

☐ Please send me more information on the _____ course.
☐ Please tell me what other training programs are available.

NAME _____

ADDRESS _____

CITY _____ STATE _____ ZIP _____

RAILROAD _____

JOB OR TITLE _____

FROM THE

"STRONGER THAN STEEL PEOPLE"

EXTENDED LIFE® SPRINGS

Railroad cars run better because ASF® pioneered the upgrading of AAR Spring Standards. AFS's specifications for making Extended Life Springs are the highest in the industry. Here's what it takes—

- Special quality, fine-grained steel.
- Direct quenching from coiling heat—then tempered.
- Controlled decarburization to maintain steel bar diameter.
- Shot peening to resist fatigue failure.
- Controlled hardness to resist settling in service.
- Skilled workmanship to obtain optimum surface condition and superior end construction.
- Coated with a clear finish for protection in handling.

And every freight car equipped with Extended Life Springs gains in these ways—

- Less breakage.
- Less settling.
- Less costly out-of-service time.
- Less maintenance.
- Less corrosion damage.
- Improved profitability.

Shouldn't you be specifying Extended Life Springs?

SEVENTY 70 BEST YEARS STRONG

American Steel Foundries

ONE OF THE Amsted INDUSTRIES

PRUDENTIAL PLAZA • CHICAGO, ILLINOIS 60601
In Canada: IEC-Holden, Ltd., Montreal, 376, Quebec

CLAUDE S. BRINEGAR, an oil company executive, has been picked to succeed DOT Secretary John A. Volpe.

EGIL (BUD) KROGH, a White House aide, is Nixon's choice to replace Under Secretary James Beggs.

FRANK HERRINGER, also from the White House staff, is to take over from UMTA chief Carlos Villarreal.

UMTA: New Team, same ball game

The nation's transit operators—along with environmentalists and energy conservationists who view mass transport as the answer to their own prayer for a better America—are looking with some apprehension at the new lineup which President Nixon has ordered for the Department of Transportion.

Subject to senate confirmation, Claude S. Brinegar, 46, senior vice president of the Union Oil Co. of California, is replacing John A. Volpe as DOT secretary. Egil (Bud) Krogh, 43, a member of the White House Domestic Council, will take over the Under Secretary's post vacated by James Beggs. Frank C. Herringer, who at 30 becomes one of the youngest Nixon men to graduate to a high Administration position, has been designated to succeed Carlos Villarreal as head of the Urban Mass Transportation Administration. Herringer, a brainy (Phi Beta Kappa, magna cum laude) graduate of Dartmouth College, with a management consultant background, is now at the White House as deputy to Frederic V. Malek, whose reputation is that of a hatchet man.

The new team comes in at a time when the old one, in the words of one long-time fighter for greater Federal support of mass transport, was "just beginning to learn the game—and starting to win it."

The big question is: How will the White House call the plays?

The game remains the same: reordering a system of priorities which in the past has heavily favored the proliferation of street-choking, air-polluting, energy-consuming automobiles in urban areas.

The question is: How will the White House call the plays now that the election is over?

● **Two views.** The cynical view is that the first Nixon Administration was one of creating domestic programs; and that the second will be one of cutting back, especially in view of the President's often-expressed determination to hold spending down.

The more hopeful view—and one widely though cautiously held by those who have been close to the Administration's fight for a fairer deal for mass transport—is that by putting an oil company executive into the top post, the President hopes to soften opposition to his plan for making a portion of Highway Trust funds available for whatever use urban areas assign the highest priority, including transit; and that by putting White House men into other key jobs, the Administration will have tighter control over seeing that its frequently-stated pro-transit commitments are carried out.

Among the optimists is Dr. William J. Ronan, chairman of New York's Metropolitan Transportation Authority and president of the Institute for Rapid Transit. Says Ronan:

"During 1972, widespread public support was evident throughout the nation for new Federal legislation needed to revitalize our urban public transportation systems. It is now our task to build upon this desire for action-oriented legislation, which was manifest last year in the Senate's approval of transit operating subsidies and of using the Highway Trust Fund to help finance transit system improvements. We are pleased that President Richard M. Nixon continues to support Federal programs to assist the states and local communities in improving their transit systems. We also are encouraged by the strong indications that President

◀ Circle 10 on coupon page 41

Transit will try again in '73 to tap the Highway Trust Fund

Nixon's appointee as Secretary of Transportation, Claude S. Brinegar, will continue Secretary John A. Volpe's efforts to provide transit with access to the Highway Trust Fund."

Like other transit leaders, Ronan emphasizes that cutbacks in the Federal programs cannot be tolerated.

"To do the job of reinvigorating their transit systems properly, our areas need a substantial increase—at least $3 billion within the next two years—in the money available under the Urban Mass Transportation Act of 1970 for capital improvements, research and development projects and the like," says Ronan. "I want to see the Federal share/local share ratio for grants under the Urban Mass Transportation Act of 1970, and any other similar legislation that is passed, brought up to at least 80/20, preferably 90/10, from the current two-thirds/one-third ratio. I hope that we will succeed in making it possible for the states to elect to use a portion of their allotment from the Highway Trust Fund for capital improvements to urban public transportation systems. In particular, it is important to see that no restrictions as to the public transportation mode are placed on the use of such funds."

● **Crisis of the fare box.** Capital-improvement assistance isn't enough, Ronan adds: "As the new year begins, many of the nation's bus and rail transit systems are caught again in the crisis of the fare box. Clearly, there is a great need for new programs of public assistance to transit systems that will stabilize their fares, prevent curtailments in service that is vital to a cross-section of the population, and act as an incentive for service improvements that will gain new riders."

Stanley H. Gates, Jr., president of the American Transit Association, is another who emphasizes that "the transit crisis remains."

● **Legislative blueprint.** Gates says the ATA will be urging the adoption this year of the transit package that failed to pass in 1972 when the House was unable to consider the proposal in the rush to adjournment: (1) a Federal program of transit operating aid; (2) an additional $3 billion in contract authority for UMTA's capital grant program; (3) an increase in the Federal local matching ratios from the present two-thirds/one-third to at least 80%/20%; and (4) 100% Federal funding for transit planning.

Gates adds: "The industry was also heartened at the adoption by the Senate of the Cooper-Muskie amendment to the Federal-Aid Highway Act of 1972. The Senate approved the allocation of up to $800 million annually for urban transportation purposes. The Senate would have left it to state and local officials to determine what proportion of the $800 million would be spent for highways and what share would be allocated to public transit capital expenditures—either bus or rail."

One important DOT officer who is staying on, Assistant Secretary John Hirten, has recently been meeting with interested groups to try to develop a compromise plan for raising new money for mass-transit. One of several proposals considered has been a penny-added tax on gasoline which would produce about $1 billion a year for transit without siphoning off money presently earmarked for highway construction. A noted urbanologist, Hirten is widely respected by all modal interests and his continued presence at DOT is viewed as a big plus by the advocates of balanced transportation.

● **Transit's "invisible" enemy.** The need for balanced funding is emphasized by BART General Manager Bill Stokes: "Until we have activated a balanced philosophy toward funding, there can be no balance in transportation implementation. This is particularly important, it seems to me, because many cities which should be looking at vastly improved transit solutions to their problems have not done so because of the philosophical and real obstacles raised by any solution other than roads funded by the 'invisible' gasoline tax."

Robert T. Pollock, general manager and chief executive officer of the Cleveland Transit System, is one of many operators whose main present concern is operating deficits. Last year's action on operating subsidies was, in Pollock's view, "both the most disappointing and, at the same time, the most encouraging transit development of 1972. The last minute failure of Congress to provide operating funding for transit, in spite of the abundant evidence of need in the national, public interest was most discouraging. However, the assurances of both Administration and Congressional leaders that this matter will be promptly taken up by the new Congress is most encouraging."

● **Encouraging signs in '72.** Whatever uncertainties 1973 may hold, transit leaders look back on 1972 with considerable satisfaction. The 1972/73 fiscal year was the first "billion-dollar year" for UMTA. Ronan takes note of these other encouraging signs:

"The year 1972 saw ridership on Chicago's new Dan Ryan and Kennedy Expressway rapid transit lines far exceed the original predictions. The same was true on Boston's new South Shore extension to Quincy. Southern New Jersey's PATCO system also experienced substantial patronage increases on its Lindenwold line, due partly to cooperative efforts with Transport of New Jersey to develop feeder bus service connecting with the high-speed rapid transit line. By the end of 1972, New York's MTA completed over 90% of the work on the joint Transit Authority-Long Island Rail Road tunnel under the East River at 63rd Street and began digging for the long-awaited Second Avenue Subway. San Francisco's BART system began passenger service on the outer end of one of its lines and, despite teething problems and pot shots taken at it by critics, was attracting considerable patronage. Atlanta obtained public approval of its rapid transit plan and new taxes to help finance it, then cut bus fares back to 15 cents and won ridership gains that attracted attention throughout the country. Results of this kind, achieved in 1972, show that the citizens of our urban areas will respond favorably to improvements in their transit systems."

But right now, transit men are less interested in counting last year's blessings than in assuring a flow of new ones for the new year.

● **"Some room for uncertainty, but—."** Louis J. Gambaccini, director of the rail transportation department for the Port Authority of New York and New Jersey, sums up the hopes and the fears of the transit industry as the new year begins:

"Changes in the Washington scene, both within the Adminstration and on Capitol Hill, leave some room for uncertainty. But I feel the national trend and groundswell are strongly in favor of new thrusts in support of public transportation. We will be working immediately with the new team in the Department of Transportation and with the new Congress to develop strategies to move a significant legislative program, including all those elements which were contained in the 1972 effort. Recent Administration commitments to carry forward the fight on the Trust Fund issue are encouraging as are indications that this Congress will be even more attuned to urban and environmental issues than its predecessor."

● **Volpe-Villarreal: A winning team.** When Secretary Volpe and UMTA Administrator Villarreal leave DOT, they

(Continued on page 33)

Rail transit/commuter car market at a glance

These new car orders are likely in 1973:

For service on...	No. of cars	Type	Purchaser	Builder
Bay Area Rapid Transit	100	B	BART	Rohr
Chicago Transit Authority	100	Rapid Transit	CTA	———
Chicago South Shore & South Bend	34	Commuter	Lake-Porter County Trans/Planning Commission	———
Erie Lackawanna	200	MU	New Jersey Department of Transportation	———
Illinois Central Gulf	16	Commuter	Chicago South Suburban Mass Transit District	———
Long Island	4	G-TE	Metropolitan Transportation Authority	EMD
Massachusetts Bay Transportation Authority	150	Street Cars	MBTA	———
	80	Rapid Transit	MBTA	———
Milwaukee Road	41	Commuter	N.W. Suburban Mass Transit District	———
Montreal Urban Community Mass Transit Commission	400	Rapid Transit	MUCTC	———
PATCO	48	Rapid Transit	Delaware River Port Authority	———
San Francisco Municipal	80	Street Cars	SFM	———

These new cars were delivered in 1972:

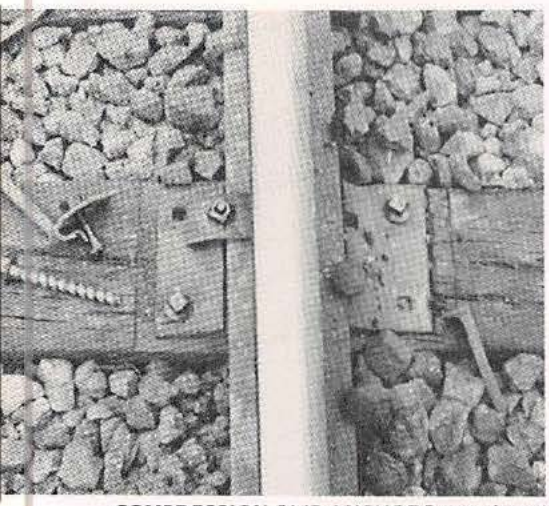
For Service on...	No. of cars	Type	Purchaser	Builder
Bay Area Rapid Transit	102	Rapid Transit	BART	Rohr
Illinois Central Gulf	96	Commuter	Chicago South Suburban Mass Transit District	St. Louis Car
Long Island	150	M-1	Metropolitan Transportation Authority	GE/Budd
N.Y. City Transit Authority	192	R44	MTA	St. Louis Car
PATH	46	Rapid Transit	PATH	Hawker-Siddeley Canada
Penn Central	130	MU	SEPTA	GE

Work goes forward on this undelivered backlog:

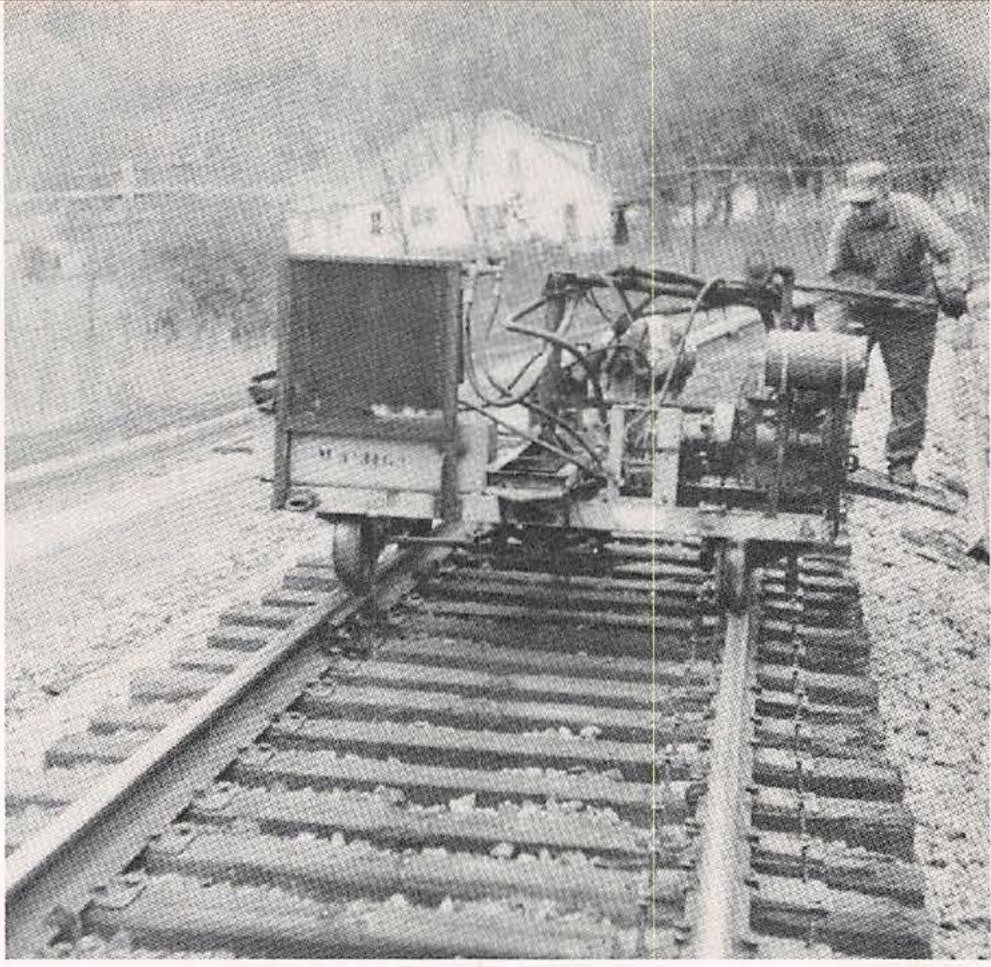
For service on...	No. of cars	Type	Purchaser	Builder
Bay Area Rapid Transit	147	Rapid Transit	BART	Rohr
Burlington Northern	25	Commuter	West Suburban Mass Transit District	Budd
Erie Lackawanna	50	Commuter	N.J. Department of Transportation	Pullman-Standard
Long Island	8	G-TE	MTA	Garrett Corp/GE
Penn Central (New Haven)	144	M-2	MTA/Connecticut Trans. Authority	GE
N.Y.C. Transit Authority	860	Rapid Transit	MTA	St. Louis Car
Penn Central	70	MU	N.J. DOT	GE
Reading	14	MU	Southeastern Penna. Transportation Authority	GE
Staten Island Rapid Transit	52	R44	MTA	St. Louis Car
Washington Metropolitan Area Transit Authority	300	Rapid Transit	WMATA	Rohr
GO Transit (Ontario)	30	Commuter	Govt. of Ontario	Hawker-Siddeley Canada

The long-range outlook:

For service on...	No. of cars	Type	Purchaser	Builder
BART	200	Rapid Transit	BART	———
Chicago Transit Authority	450	Rapid Transit	CTA	———
Chicago, Rock Island & Pacific	50	Commuter	———	———
Jersey Central	18	MU	———	———
Long Island	360	Commuter	MTA	———
MARTA (Atlanta)	300	Rapid Transit	MARTA	———
MBTA (Boston)	25	Street Cars	MBTA	———
PATCO	100	Rapid Transit	Delaware River Port Authority	———
PATH	90	Rapid Transit	PATH	———
Philadelphia Transit Commission	140	Street Cars	SEPTA	———
San Francisco Municipal	12	Street Cars	SFM	———
WMATA (Washington, D.C.)	256	Rapid Transit	WMATA	———



COMPRESSION CLIP ANCHORS were found to be effective in preventing rail overturning for the combination 100/132-lb tie plates.



TIE PLATES 18 inches long have been adopted as standard for all curves 5 degrees and sharper. The screw spikes are used in the hold-down positions.

Retaining gauge on curves: The

By R.E. Dove, Associate Editor

Louisville & Nashville has found that powerful diesel units with three-axle (including Trimount) trucks are great for hauling tonnage—but they create problems for holding rail gauge on curves. The problems are particularly prevalent on the sharp curves of the eastern portion of the road where it is operating diesel units with the six-wheel trucks. In an effort to secure and retain track gauge, the L&N launched a three-pronged plan of action: (1) a laboratory study, (2) use of gauge-measuring devices, and (3) adoption of new standards for tie-plate sizes and spiking patterns for various curvatures.

Two derailments in the spring of 1972 caused by rail moving outward and turning over focused attention on the matter of holding proper gauge. R.W. Pember, assistant chief engineer-maintenance of way, had the track forces check the gauge over the entire system. As a whole, gauge was found to be good, but on some curves the gauge was not satisfactory.

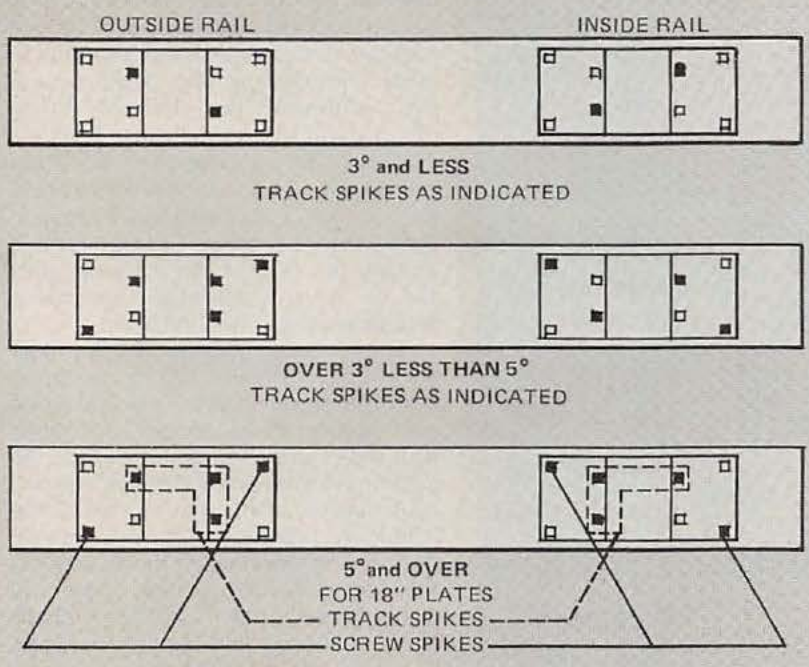
It was decided that more effective methods of retaining gauge on curves would have to be adopted. Visits were made to other railroads to learn of their recent experiences and practices. The problem was then referred to the road's testing laboratory where the lateral wheel thrusts required to overturn rails were tested, using various fastenings, combinations and spiking patterns.

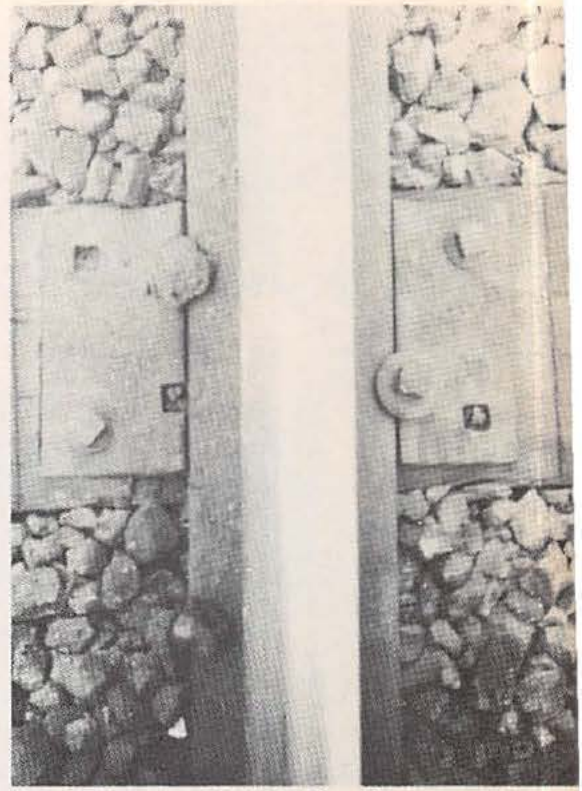
● **Dual plate punching.** One of the facets of the problem was found to be L&N's extensive use of tie plates punched for use with both the 100-pound and 132-pound rail sections. When these plates were used with 132-pound rails, one of the rail-spike holes on the gauge side, which fitted the 100-pound rail base, was totally covered by the 132-pound rail base. This precluded use of two cut spikes on the gauge side to bear on the inside rail base for resisting rail overturning. It was decided, therefore, to place a Rails Co. Compression Clip Anchor in the uncovered hole where a spike was previously used. Decision was made to install such clips on all combination plates for both the 100-pound and 132-pound rails on the gauge side of the high rails on all curves 3 degrees or over.

The clips are used solely for preventing overturning of the rail. No change was made in the road's standard anchor pattern to take advantage of the clip's anchoring ability. The clips are used around the entire curve, through the spirals and onto the tangent for 100 feet.

While the gauge-widening problem was under study in the laboratory, reference was made to tests and studies of derailments involving diesel locomotives conducted by the Electro-Motive Division of General Motors Corp. In an address on "Wheel and Rail Loadings from Diesel Locomotives" before the AREA convention in March 1971, L.F. Koci, chief locomotive engineer of EMD, reported that, in wheel-to-rail reaction: (1) Wheel climbing could be expected when the lateral-to-vertical wheel-load ratio was equal to or greater than 0.9 at the leading outer wheel; (2) rail rollover was possible when the lateral-to-vertical load ratio for the entire truck was equal to or greater than 0.5; and (3) track shifting was possible when the net lateral axle load was equal to or greater than 40% of the vertical axle load on poor track conditions.

These ratios were developed with the diesel locomotive "coasting" and not applying power and traction. Koci pointed out that the degree of curvature, speed, sanding, coupler reaction, dynamic braking and the weather would also have an influence on derailments.


SPIKING PATTERNS FOR CURVES WHERE 132 lb RAIL IS IN USE WITH STRAIGHT 132-lb-14", 132-lb-16" AND 132-lb-18" TIE PLATES
OUTSIDE RAIL
INSIDE RAIL
3° and LESS
TRACK SPIKES AS INDICATED
OVER 3° LESS THAN 5°
TRACK SPIKES AS INDICATED
5° and OVER
FOR 18" PLATES
TRACK SPIKES
SCREW SPIKES
FOR 14" PLATES
ALL SPIKES TO BE CUT SPIKES



WASHER-HEAD SCREW SPIKES, which laboratory tests showed to be promising in preventing rail rollover, are being tried out as line spikes on gauge side.

L&N approach

● **Diesel sidethrust suspected.** Keeping these considerations in mind, the road's engineers theorized that curved track, while being at good gauge when not under dynamic load, was receiving serious side thrusts from the 3,000-hp six-wheel Trimount trucks of the diesel units, especially while the units were traveling downhill under dynamic braking. It was decided to mount an electronic gauge-measuring device on Alco unit No. 1427 to check gauge under dynamic loading.

An electronic device involving use of two capacitor-type sensors with related circuitry was purchased from Ensco, Inc. This equipment was installed on the locomotive along with equipment to continuously record gauge and to paint the track where gauge was 1 inch or more wide. Such spots, where verified, were immediately slow-ordered to 10 mph until corrected.

Responsibility for installation of the purchased equipment, as well as additional recording and painting facilities, was assigned to John W. Borntraeger, electrical engineer, and David Orr, mechanical engineer, with consulting service from Ensco. The sensors were mounted between the wheels of the locomotive truck and in the flangeway area so that they were from 1 to 1½ inches from the gauge side of each rail. An air cylinder made possible the raising of the sensors for protection through turnouts, grade crossings or other obstructions.

The wide-gauge information is recorded graphically on a chart by an apparatus in the locomotive cab. Using a two-channel recorder, one channel scribes the gauge readings and the other, using a manual pushbuttom system, marks the tape for switches, frogs, road crossings, mile posts, curves, undergrade and overhead bridges, signals and tunnels.

● **Suspicions confirmed.** When Alco No. 1427, hauling a caboose, was run around a number of curves it was found the rails did move outward while under dynamic loading. The distance was dependent upon the tie condition, size of plates and speed. The sensors detected many places with 1-inch-wide gauge, some of which did not show up under static measuring. The high rail moved the most, the low rail only slightly.

To find out how much the rails moved under loading, another device was built. This consisted of a wooden block fastened to the ties, into which a steel rod was inserted. The latter, free to move in the block, remains in the displaced position after passage of the train. Several of these devices were installed with the rod butting against the ball of the high rail on the field side. Others were similarly positioned on the low rail. After the test runs, the distance the rod moved in each case was measured.

On one test run, the train was run around a 6-degree 30-minute curve at 50 mph. The high rail moved outward 9/16 of an inch and the low rail 1/16 inch, giving a total gauge widening of 5/8 inch. At one joint on the high side, the rail moved outward 5/8 inch. When the speed of the train was reduced to 40 mph, the movement was less and the total gauge widening at the joint was 7/16 inch. This made it obvious that train speeds had a direct influence on rail movement.

Alco No. 1427 was then used to detect gauge widening on other portions of the heavy-tonnage territory where Trimount six-wheel units were operated. The unit was used for its measuring ability only. Its tractive power, although available, was not considered when providing the assigned power to move a train. The test unit was placed in the

TRACK FORCES ARE BUSY, especially in the heavy-tonnage mountainous regions, driving additional spikes to conform with the new spiking standards.

train behind the last of the several motive power units. A cable was run from the measuring device to the lead diesel unit so the mechanism could be raised in time and lowered at turnouts and crossings.

● **Equip rail/highway truck.** Pleased with the results obtained from its gauge-measuring activities, the railroad constructed a mechanical gauge-measuring apparatus and mounted it on one of its railway/highway pickup trucks. This unit is to measure gauge on all parts of the railroad. It is equipped with its own air compressor for operating the raising and lowering mechanism, and with a paint-marking system. Wherever the gauge is detected to be 1/2 inch wide, a white paint stripe is deposited along the center of the track. Whenever gauge 1 inch wide or wider is detected, a yellow paint stripe application is made and the white paint is cut off.

Usual practice is for the division engineer or his assistant to ride the car, which is operated at speeds of 25 to 35 mph. When a wide-gauge condition is noted, a visual check is made of the gauge at the yellow-stripe locations to determine the cause and the track is slow-ordered and corrected on an emergency basis. Arrangements are made for a section or district gang to regauge the track and add hold-down spikes. The engine-checked locations are checked statically. The white-painted sections are corrected on a priority basis depending on severity.

Alco No. 1427 has been operated over the same heavy-tonnage territory about once every two months. The railway/highway gauge-measuring truck follows, usually the same day, so the information can be correlated. It follows again later as a check on whether the gauge has been corrected.

● **Helps roadmasters.** The roadmasters are pleased with the assistance of the gauge-measuring devices in setting up work priorities. They say it would be difficult for them to find the vulnerable spots by hand gauging. When the engine and truck gauge-measuring units were first operated, entire curves had to be regauged. Now, only spot gauging at one or two joints of a curve is required.

The gauge-measuring equipment has been removed from Alco No. 1427 and mounted on an EMD four-axle diesel unit. This will permit testing all parts of the system, including branch lines where the heavier motive power does not operate. It will also produce information on the difference in action of the two types of locomotive units. Later, the equipment may be mounted on a center-pinned six-axle diesel locomotive to check its train-rail dynamics.

● **New spiking standards.** From tests made in the laboratory of various spiking patterns, the road has developed and adopted new standards. In addition to using Compression Clip Anchors with the combination 100/132-pound punched plates, which laboratory tests showed to be very effective against rail overturning, L&N has standardized on the use of 7 3/4-inch-by-18-inch tie plates, for all curves 5 degrees and sharper on its heavy-tonnage territory and on all curves through areas where holding gauge has been difficult.

The plates are punched for four line spikes and four hold-down spikes. In the territory indicated, three line spikes are now used on the outer rail of a curve, with one screw spike driven in the hold-down holes on each side of the rail. Pilot holes are drilled in the ties at the hold-down positions. For the inner rail, three line spikes (two on the gauge side) and two hold-down screw spikes are used. These patterns hold entirely around the curve and through its spirals to points 100 feet beyond the spirals on tangent track. (Spiking patterns adopted are shown in the diagram on p. 29.)

Still another means being tried out to secure track gauge is the use of washer-head screw spikes 8½ inches long, which are driven as line spikes. The undersides of the washer heads are tapered to conform with the slope of the rail base. Laboratory tests showed that use of these spikes in this position is promising in preventing rail turnover.

● **Track forces are busy.** Adoption of the new standards has resulted in an extra work load being placed on the track forces.

When rail is being laid, tie-plate and spiking standards can be adjusted at that time. But there are a few locations in mountainous regions where holding gauge on certain curves has been difficult and the replacement of 14-inch plates with 18-inch plates under the high rail has been approved. This replacement necessitates tie-adzing a 20-inch swath to accommodate the longer plates.

To save the time and expense of taking up the rail to adz the tie-plate seats, the road devised and built a new adzing machine. This has two adzing heads, of conventional diameter, which are offset from one another but operate one behind the other. For using this machine, spikes are pulled from the high rail and two rail-lifting machines, one ahead of the adzing unit and the other behind it, raise the rail high enough for the adzing heads to work. The heads are hinged so that, when the rail is raised, one swings down under the gauge side of the rail and the other under the field side. The new, longer tie plates are placed while the rail is in the raised position. ■

Hoosac Tunnel gets a new steel interior

LATEST LINING consists of a horseshoe-shaped structure resting in track-level steel channels. Segments were preassembled to reduce on-site bolting.

For several days before Aug. 5, 1972, Boston & Maine's engineering department had been watching apprehensively a crack in the brick arch lining of the 4.75-mile Hoosac Tunnel in western Massachusetts. The century-old bore pierces the main ridge of the Hoosac Range and through it moves the bulk of B&M's freight traffic. Two of every three loads the road handles go through the Hoosac—traffic which accounted for over $45 million of B&M's $65-million freight revenues in 1971.

Most of the tunnel is driven through solid rock. About 8,000 feet are through soft rock at the west end where the pioneer builders found it necessary to install as lining an eight-course brick arch. When completed in 1875 Hoosac, the longest of tunnels, was hailed as the leading engineering feat in the Western Hemisphere.

Construction over 25 years had introduced an unsuccessful tunnel boring machine and then, successfully, compressed air rock drills and nitroglycerine as the most potent of tunnel fashioning instruments.

● **Before the fall.** Since the 1950s, B&M has been faced with increasing maintenance problems in the Hoosac, particularly in the lined soft-rock zone at the west end. From time to time, there have been falls of brick from the century-old roof. Repairs are made by grouting the cavities that develop as water leaches through Massachusetts limestone and slate to disintegrate the mortar, or by lining the affected areas with metal plate.

B&M was again preparing to stabilize the cracked area near the Hoosac's western portal with grout when suddenly, on Aug. 5, a large portion of the roof collapsed, loosing a flow of rock and earth extending many feet up into the mountain.

Seven to eight freight trains operate daily in each direction over this single-track main line. Closing the tunnel set off a flurry of detours for the traffic and H.B. Berkshire, chief engineer, marshalled his department to restore B&M's most vital route. He noted during following days that there was a constant fall of material from the cavity, that the south tunnel wall had continued to settle, that adjacent roof areas bulged and stress cracks were progressing through the brick.

Drastic proposals were studied by the road's trustees. John W. Barriger, chief executive officer, reported that permanent closing of the Hoosac would be "a financial disaster" for B&M. If traffic were accepted at points further east (to bypass the tunnel), B&M might lose $17 million annually, even if it continued to handle every carload it had been moving. A change in interchange points and changes in service patterns would obviously cost substantial traffic. The net effect, according to Barriger, would have been an early end to B&M as an independent operation.

● **After the fall.** B&M quickly located a contractor expert in tunnel work and proceeded to erect temporary H-beam archwork to support the damaged brick lining. To permit movement of off-track equipment to the site of the lining failure, track from the tunnel portal to that point was disassembled in panels and stored outside. B&M m/w forces worked right with the contractor.

While the tunnel was being cleared of its track and then the fallen material, work proceeded on fabrication of a steel-channel "patch" contoured to the shape of the brick arch. Intrusion Prepakt Corp. was brought in at this point for advice on filling the cavity with grout and sand.

The Hoosac had been closed on a Saturday and work went ahead virtually around the clock during the following week. The patch was jacked carefully into position and braced. Then concrete trucks moved into the tunnel in a steady stream as grouting of the tunnel roof proceeded. Late in the week, the patch and the falsework were removed and the track was relaid and ballasted. In just six days, the B&M main line was back in service.

● **Permanent solution.** What had been accomplished to this point was only an interim solution. But B&M officers were already planning the next phase. Over the past ten years the road has been engaged in a program of lining the Hoosac's deteriorating brick arch with Armco Liner Plate, then grouting behind it to fill the space. Even in the late 1950s the road had a 15-man force engaged virtually full time in maintaining the tunnel.

It was to eliminate this situation that the road had undertaken to install the bolted steel arch. The first phase saw installation of the plate arch under the roof from a heavy steel shoulder installed about 9 feet above the floor. In three stages from 1963 to 1966, 321 feet of the tunnel were lined in this way.

In 1967, Armco supplied liner plates for an additional 378 feet, installed this time from a curb placed at track level along the tunnel walls. While this complete horseshoe-shaped structure involved a substantially larger number of the 3-gauge liner segments, they were preassembled to reduce on-site bolting during assembly. Three of the Liner units spanned the interior of the tunnel.

Last month B&M completed installation of an additional 54 feet of Armco liner in the area where the August failure had occurred. Now, nearly 10% of the Hoosac's brick lining is supported in a manner which virtually eliminates maintenance problems, according to the road's engineering department. ■

Air Brake Books

We have just reprinted the popular air brake books by the late C.M. Drennan.

Most of the books have already been reserved and only a limited number are available for sale.

Reserve your set today!

Vol. I
ABC's OF AIR BRAKES

The fundamentals of air brake design, construction and operation as applied to railway cars and locomotives. The key volume in the study of air brakes. Air Brake Dictionary is included.

Vol. II
CAR AIR BRAKES

The construction and operation of car air brakes with detailed diagrams and descriptions of the equipment and its components.

Vol. III
LOCOMOTIVE AIR BRAKES

Locomotive brake devices and equipments discussed in detail in every phase of operation. This volume, as well as volume I and volume II, is interspersed with quizzes-ideal for home study.

PRICES

Single copy $9.00
Two copies (same or assorted) . . . . . $8.00 ea.
Three or more copies (same or assorted) . $7.00 ea.

Simmons-Boardman Publishing Corp.
350 Broadway New York, N.Y. 10013

Gentlemen: Enclosed is $ _____

Please send the following books . . .

— ABC'S OF AIR BRAKES . . . . . $ ___
— CAR AIR BRAKES . . . . . $ ___
— LOCOMOTIVE AIR BRAKES . $ ___
TOTAL . $ ___

Name _____
Company _____
Street _____
City, State, Zip _____

Watching Washington

REID BEDDOW

FAT CITY

The bureaucratic survivability award goes—hands down—to the Interstate Commerce Commission. Two years ago at this time of year, senators were daily casting insults its way. Important Administration spokesmen were calling for deregulation. The abolitionists were in full pursuit of what reformers called the Uncle Tom of Agencies.

Now, 24 months later, all—well, nearly all—is sweetness and light. Harassed civil servants of DOT and HUD, departments among others that are in the throes of retrenchment and new administrators, refer to their ICC colleagues as inhabitants of "Fat City."

Thus it is that the Commission's 86th annual report to Congress, released Dec. 29, exhibits none of the defensiveness and paranoia of the 1971 report. Matter of factly stating that "substantial improvements in operating economies will be necessary if railroads are to maintain their ability to provide adequate service to the Nation," the report details with appropriate self-congratulation ICC's record in rail matters during 1972. Some actions were indeed noteworthy: the Illinois Central and Gulf merger, the purchase of CNW by its employees, the granting of permission to Southern for operation of a barge line on the Ohio River (though this latter is still before the Commission for consideration), and new procedures for facilitating abandonment of branch lines, including a statistical standard of a 34-car-per-mile break-even test.

The 1972 report also contains the first official government notice of a happy turn of events, flatly stating, "There was no general inadequacy of supply of freight cars this year."

TRUMPETS AT THE WALLS

But if diminished, criticism of ICC has not been stilled. And indications are, the venerable Commission may have some anxious moments in the coming year.

One indicator is the recent appointment by President Nixon of Roy L. Ash as director of the White House Office of Management and Budget. He is unlikely to view with favor the proposal supported by rails and their surface mode allies that ICC be allowed to approach Congress directly for budgetary funds, and there is always the possibility that President Nixon could veto a version of the Surface Transportation Act containing such a proposal. Moreover, as chairman of Litton Industries, Mr. Ash authored a report that recommended merger of ICC, CAB, and FMC along with other deregulatory prescriptions. That report has not been forgotten at the White House.

A more direct assault on ICC was made Dec. 11 by the American Enterprise Institute for Public Policy Research, a privately-funded, non-partisan research group, with the release of a report by Thomas Gale Moore, a Michigan State economist, on ICC surface freight policies. Moore indicts ICC as stifling competition and producing higher shipping costs, causing rails to lose between $1.7 billion and $2.4 billion annually.

This is the sort of high-level economic thought that is becoming increasingly influential. ICC characterized the Moore report as "half-baked" but the slur will not send ICC economist critics away.

UMTA's new team faces old problems

(Continued from page 26)

will take with them the warm gratitude of the transit industry. The credentials of neither, at the outset, seemed overwhelmingly favorable. Volpe was best known as a highway builder who became governor of Massachusetts. Villarreal, an executive of the Marquardt Corp., was little known at all, and his appointment was widely regarded as a gesture toward the Mexican/American community. As it turned out, the Volpe-Villarreal team quickly achieved goals that most transit men thought to be in the distant future—importantly, passage of the multi-billion-dollar Urban Mass Transportation Act of 1970. While the supporters of conventional technology often had reason to quarrel with what they viewed as DOT's undue infatuation with "Flash Gordon" technology, that infatuation was less marked in the later years of the Administration and the commitment of DOT to here-and-now solutions for here-and-now problems was a very solid one at the end of four years.

Despite early fears that a disproportionately large amount of available funds would go to highway-oriented interests, rail transit has fared comparatively well. During the first 11 months of calendar 1972, for example, out of total UMTA grants amounting to $497,426,101, more than 73%—or $364,047,042—went to rail and rail-related projects.

The transit industry's major quarrel with Volpe and Villarreal has been on the question of operating subsidies. In a year-end interview, Villarreal stated the Administration's position this way:

"The question is no longer whether Federal resources should be used to help finance operating costs of transit systems; the question is by what means the resources should be delivered.

"In a June 12, 1972, letter to the chairman of the House Banking and Currency Committee the Secretary of Transportation stated the Administration's basic outlook on this issue. The statement was responsive to Title VII of the Housing and Urban Development Act of 1972, which would have authorized a new categorical grant program of $400 million annually in 1973 and 1974 for transit operating expenses. The letter said, in part:

" '. . .the Administration is strongly opposed to the provision of Title VII which would authorize a new categorical grant program for operating subsidies on the grounds that no matter how well conceived, it will require Federal intervention and control in local transit policy and managerial decisions; and it will continue to compartmentalize local program choices, rather than encourage freedom of action responsive to local priorities. We have erred in the past by treating transportation problems as a series of separate concerns rather than as a single concern with interrelated parts. Title VII would continue in this direction by adding another categorical grant program, which we oppose.'

"The letter also reiterated the position of the Administration on preferred delivery systems for granting assistance:

" 'In providing additional Federal funds, the delivery system and policies associated with it are of crucial importance. A major philosophical and program tenet of this Administration has been to return financial resources, and program responsibility, to local elected officials. To meet these objectives and assist in relieving the fiscal crises of our cities, the Administration has introduced General Revenue Sharing Legislation.'

"The general revenue sharing legislation was elected, and the funds now being distributed to local authorities can be used to finance transit operating costs, if local authorites so decide.

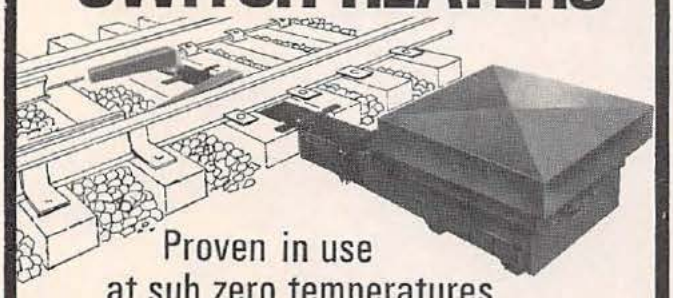
"However," concluded Villarreal, in a rare mood of understatement, "the issue has not subsided." ■

NEW!

RAILS COMPANY

HAB-HP

SWITCH HEATERS



Proven in use at sub zero temperatures

High pressure blower distributes hot air steadily, evenly, through a duct and nozzles—keeps switch points operating in all weathers.

All components located for easy installation and servicing—separate remote control panel is free from trackside vibration. Hot air duct is electrically insulated against track circuit interference and designed to provide maximum air flow.

Manual or automatic operation. Oil fired, natural gas or propane models available.

Write or call for detailed information.

THE RAILS CO. Maplewood, N.J. 07040 • Omaha, Neb. 68102
Chicago, Ill. 60604 • San Francisco, Calif. 94105
In Canada: IEC-Holden, Ltd.

SERVICE TESTED FOR DEPENDABLE OPERATION.

Circle 11 on coupon page 41

PROGRESS REPORT

SPENO

Here are the up-to-date facts on the SPENO Ballast Cleaning and the SPENO Rail Grinding Services.

BALLAST CLEANING
SPENO Engineering and Research has developed a superior screening arrangement so that we are now using an improved Ballast Cleaner with greater efficiency.

RAIL GRINDING
Our Rail Grinding Service has been so well received we are now building a *FIFTH* Rail Grinding Train to take care of the increased demand.
SPENO is constantly developing means for better service to make sure that the Railroads receive everything they pay for — and more.

"Just Ask the Railroads That Use Our Services"

Frank Speno Railroad Ballast Cleaning Company, Inc.
306 North Cayuga St., Ithaca, New York 14850
Clark St. East Syracuse, New York Box 219 13057

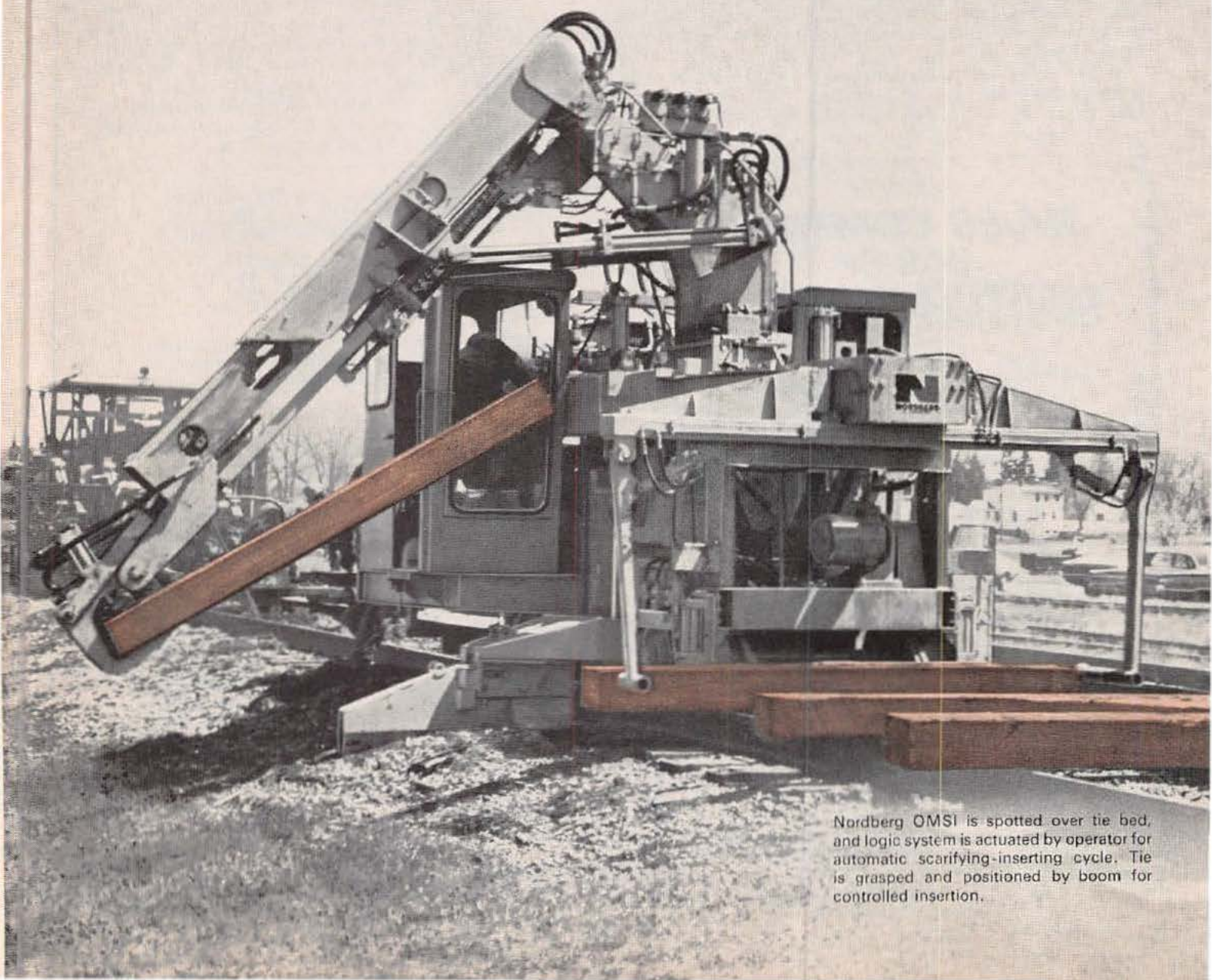
MEMBER RPI

Speno International, S. A.
22 Parc Chateau Banquet, Geneva, Switzerland
(For Rail Grinding Outside the North American Continent)

IEC-Holden Ltd.
8180 Côte de Liesse Road
Montreal, 376 P. Q. Canada

Circle 12 on coupon page 41

Here comes OMSI



Nordberg OMSI is spotted over tie bed, and logic system is actuated by operator for automatic scarifying-inserting cycle. Tie is grasped and positioned by boom for controlled insertion.

New Nordberg® One Man Scarifier-Inserter places up to 200 ties per hour

Two machines in one—One Man Scarifier-Inserter (OMSI) boosts tie inserting capacity over old methods by 75%. This newest member of the Nordberg line of Mechanical Muscles® will stretch your track maintenance dollars.

OMSI selects ties, scarifies bed, and inserts ties square with the rail at a rate of 200 per hour.

- Solid state logic system. Entire scarifying and inserting cycle is automatic after initiation by operator.
- Two fully equipped cabs. Optimum visibility provided on either side of track for renewal operations and travel.
- Programmed tie insertion. Up to 200 ties per hour, each inserted square with track ready for plating and spiking.
- Programmed scarifying depth. Scarifier blades penetrate to controlled depth; ballast falls back (not shoveled) around inserted tie.
- Hydraulic systems. Power provided by 87 hp diesel engine for insertion force to 8000 lbs. and travel speed to 25 mph.

These OMSI features translate into time, labor, cost savings and more efficient track renewal operations. Contact Nordberg's Railway Equipment Division for complete information.

NORDBERG—DIVISION OF REX CHAINBELT INC.
P.O. Box 383, Milwaukee, Wisconsin 53201
Telephone (414) 744-2345

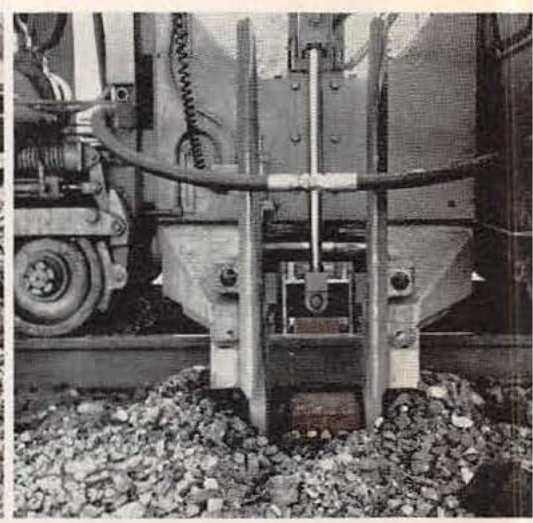
...A multi-national company serving worldwide markets

©1972, NORDBERG-DIVISION OF REX CHAINBELT INC.

R-572

Scarifier assembly penetrates and clears ballast to prescribed depth. Pivotable boom inserts ties in slightly curved path requiring a minimum clearance of 11' 7" from center of track.

Positive tie installation is assured by initial 6500 lb. insertion force being increased to 8000 lb. force for final inches of travel.



Ties are inserted square with the track and ready for plating and spiking. Here tie has been inserted through the opening provided by scarifying blades and under the second rail.

Circle 13 on coupon page 41

People in the News

INTERSTATE COMMERCE COMMISSION.—**W. Donald Brewer** unanimously elected vice chairman for 1973. He replaces **Robert C. Gresham.** Commissioner Brewer was appointed to the Commission by President Nixon in 1970 for a term expiring Dec. 31, 1976.

MISSOURI PACIFIC.—**E.M. Sengheiser** and **T.P. Murphy** appointed assistant general freight agents at St. Louis. Mr. Sengheiser was formerly assistant to general manager-pricing and divisions. Mr. Murphy was manager-special services.

PITTSBURG & SHAWMUT.—**J.W. Hubbard** appointed chief engineer, system.

SANTA FE.—**Floyd L. Elterman** appointed assistant vice president-personnel, Chicago. He was formerly assistant general manager, Los Angeles.

SEABOARD COAST LINE.—**F.H. Bradley,** assistant sales manager, Tampa, Fla., retired Dec. 31, after more than 47 years of service.

SUPPLY TRADE

Jack W. Miller, Jr., vice president, **Brenco, Inc.,** has been elected executive vice president, Petersburg, Va. **Dr. Gerald J. Moyar,** director of research, has been elected vice president research and development, succeeding **Dr. Oscar J. Horger,** retired. Dr. Horger will be available on a limited basis.

Arthur I. Wissman has been appointed sales engineer at St. Louis for **FreightMaster,** a division of Halliburton Co., with responsibility for sales to railroads and carbuilders in the St. Louis, Kansas City and Twin City areas. Mr. Wissman was formerly western sales manager, Steel Castings Division of **General Steel Industries.**

James F. Walsh has been promoted to assistant vice president-sales, **Thrall Car Manufacturing Co.,** Chicago Heights, Ill.

SKF Industries, Inc., Philadelphia, has announced that SKF journal bearing sales to the railroad and transit industries will now be handled directly by SKF's nationwide sales organization. These sales were formerly handled by **Abex Corp.,** division of Illinois Central Industries.

During 1973 SKF Industries will return railroad journal bearing production from its Asheville, N.C., facility to other manufacturing facilities.

Ralph H. Rawson has been named manager of transportation equipment service in the marketing operation, Apparatus Service Business Division, **General Electric Co.,** Schenectady, N.Y. Mr. Rawson will work with division headquarters and field management in marketing the division's locomotive,

Jack W. Miller, Jr.
Brenco

Arthur I. Wissman
FreightMaster

car and off-highway vehicle component repair business.

Ralph A. Molinari has joined **Intma Industries Division,** York, Pa., as general sales manager-railroad sales. Mr. Molinari formerly served as sales manager, **Railroad Accessories Corp.,** and vice president and general manager, **Safetran Systems Corp.**

John M. Gleason has been named general sales manager, Transportation Division, **General American Transportation Corp.,** Chicago. **R.J. Perkins** has been appointed sales manager, freight car, with responsibility for freight car leasing and sales. **R.B. Hallman** succeeds Mr. Perkins as manager, Airslide sales.

Edward A. Moorehead has been named executive vice president of **Ecolaire Inc.,**

(Continued on page 44)

WALTON...

...The final word in Electric Couplers are on

STATE-OF-THE-ART CARS

Walton Electric Couplers are in service on:

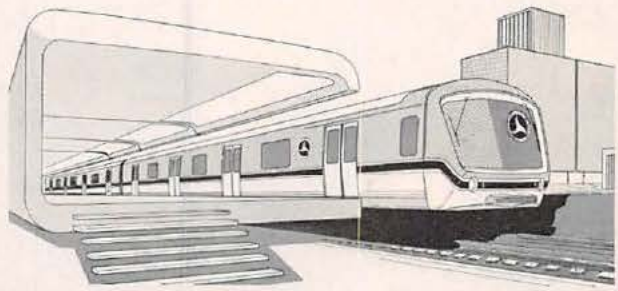
NEW YORK-MTA
ILLINOIS CENTRAL
BOSTON-MBTA
JERSEY ARROW
TORONTO TRANSIT

WALTON PRODUCTS, INC.
Railroad Engineered Equipment
868 Sussex Blvd. Broomall, Pa.

Circle 14 on coupon page 41

URS/COVERDALE & COLPITTS, INC.

CONSULTANTS FOR
TRANSPORTATION SYSTEMS
RAPID TRANSIT—BUS—RAILROADS
MANAGEMENT AND OPERATION PLANNING
VALUATIONS • EQUIPMENT DESIGN



Assisting UMTA and Boeing in the Areas of Systems Concepts, Evaluation and Transit Industry Coordination for the State-of-the-Art Car and ACT 1.

140 BROADWAY, NEW YORK, N. Y. 10005

8405 PERSHING DR.
PLAYA DEL REY, CALIF. 90291

An Affiliate of URS Systems Corporation

Circle 15 on coupon page 41

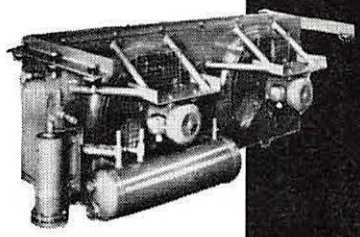
Safety

Air Conditioning

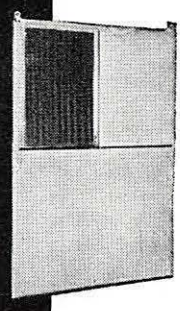
No matter what the car construction, "Safety" has designs for an air conditioning system to meet your needs.

These systems can be easily adapted to any of the varying concepts of modern transit car design.

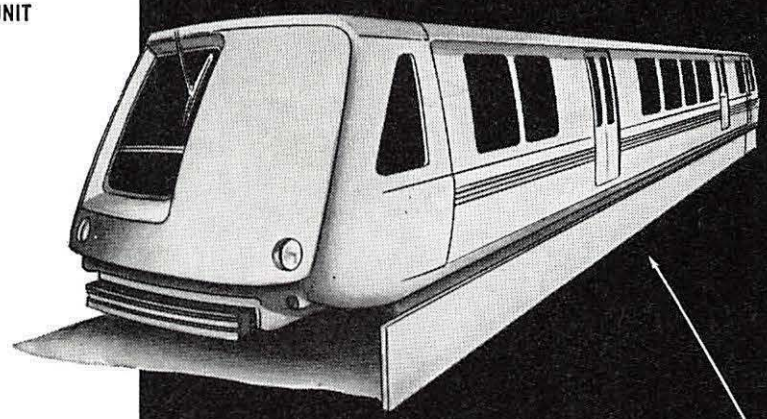
Some of the designs, arranged to meet varied car conditions, are shown below.

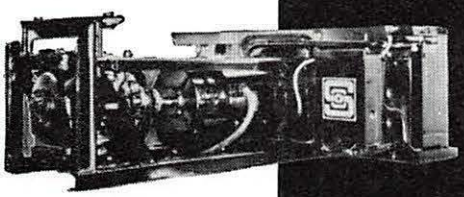


CONDENSER UNIT

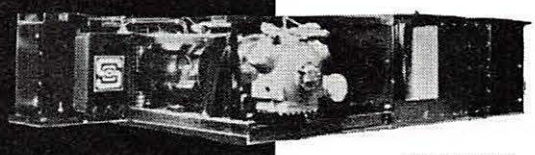


FLOOR MOUNTED PACKAGE UNIT





COMPRESSOR-CONDENSER UNIT



UNDERFRAME PACKAGE UNIT

Safety ELECTRICAL EQUIPMENT CORP.

NEW YORK · CHICAGO · PHILADELPHIA · ST. LOUIS · SAN FRANCISCO · NEW HAVEN · MONTREAL
1187 DIXWELL AVE., NEW HAVEN, CONN. 06514 TEL. 203: 865-3171

Circle 16 on coupon page 41

921
EXXON

We changed our name but not the way we keep trains moving.

When you see our railroad representatives again, you'll notice their cards are sporting our new trademark, Exxon®. We're using it coast to coast.

And on January 1, Humble Oil & Refining Company became Exxon Company, U.S.A.

What does it mean to you?

Exxon means all that we've meant to you before. The same fine petroleum products and the same technical expertise.

Do you need a roller-bearing grease so good it's used as a factory fill?

Or an ARR brake-cylinder lubricant in time-saving cartridges?

Or a rail-curve lubricant in a handy poly bag that can cut costs and help end the back-breaking labor of drum handling?

We make them, along with dozens of other petroleum products for railroads. And our change to Exxon hasn't changed them.

Our representative who calls on you hasn't changed either.

He's still the same knowledgeable railroad man who probably started like some of your best people—in the shops.

Find out more.

These are just a few of the ways Exxon Company, U.S.A. can help you keep things moving.

If you'd like to know more, write us at the Exxon Building, Room 2455, Houston, Texas 77002.

Exxon Company, U.S.A.

At General Electric Credit Corporation, we have the resources immediately available to serve your rolling stock leasing needs. On cars from any manufacturer you select.

Our leasing programs are custom designed — from beginning to end — to meet specific requirements.

GECC assets total over two billion dollars. So we can help you with many of your other leasing needs in addition to rolling stock.

For full information, write to Don Berns, National Manager of Transportation, General Electric Credit Corp., P.O. Box 81, North Station, White Plains, N.Y. 10603. Or phone him at (914) 694-8444.

General Electric Credit CORPORATION

Administrative Offices:
Stamford, Connecticut 06902 • (203) 327-7700

Leasing and Industrial Loans

Circle 17 on coupon page 41

New Products Report

PA system permits selective announcements

The Entel inter-station public address system allows a single announcer to address simultaneously any number and combination of stations or platforms, avoiding confusing blanket announcements and reducing confusion caused by delays during peak periods. The system uses four wires and operation is on the FM principle. Existing telephone-cable pairs may be utilized. Destination indicators, pre-recorded messages and security alarms for unattended stations can be incorporated. Each receiver is individually coded and is actuated by a signal produced when the operator depresses its selector button. The message is then transmitted over its loudspeaker. Booster amplifiers are available for long circuits.

Circle 60 on reader service card.

Housings for AFO track circuits permit easier installation

Audio frequency overlay track circuit transmitting and receiving equipment is now available in new housings that permit easier installation and service access. The manufacturer—Union Switch & Signal Division of WABCO—says the new steel housings are especially designed for easy shelf, wall and rack mounting and service. Applications include highway crossing protection, electric lock approach circuit, automatic car dumping circuitry and block signal indication.

Low maintenance features include elimination of insulated joints and rail bonds, and the ability to replace conventional three track circuit schemes with two track circuits. The transmitting and receiving units are 9 3/4 inches wide, 8 1/4 inches high and 9 inches deep. Internal circuitry is contained on plug-in printed circuit boards, easing replacement and minimizing downtime. The transmitter contains four, and the receiver two, printed circuit boards. Standard AAR terminal connections are provided for easy installation. Requiring an input of 8.8 to 16.2 volts DC, and designed to operate within a temperature range of -40 to +160 degrees F., the units have built-in surge protection.

Circle 61 on reader service card.

Long-span signal bridges can be made of aluminum or steel

Block or interlocking signal bridges are available in lengths up to 120 ft from Planet Corp. For highway grade crossings, Planet offers a fixed modular cantilever signal support. It features a cantilevered, horizontal arm that reaches out 30 ft and supports signal equipment and safety signs. Additional horizontal reach can be engineered into the structure. A service catwalk in the horizontal arm is a standard feature. These structures, available in both steel and aluminum, are engineered to meet a wide range of equipment requirements and wind loads.

Circle 62 on reader service card.

Locomotive speed control works under varying load conditions

The Vapor Corp. electronically operated Pacesetter II train speed control is designed for locomotives to reduce engineer work load by achieving precise speed control over a wide range (0.25 to 100 mph) with varying train load conditions. The desired speed is simply set by means of a range selector switch and calibrated dial. Speed control is accomplished by disconnecting normal excitation of the locomotive and substituting excitation from the Pacesetter. Uniform pre-selected speeds are important for loading and humping where a low speed is required constantly, despite an increase or decrease in the weight of the train or changes in track profile. The Pacesetter responds instantly to any change in speed setting, although circuitry is incorporated to control the rate of change until the new speed is

FOR FAST INFORMATION ON 1 to 3 ITEMS ONLY USE THIS
EXPRESS CHECK-OUT CARD
PLACE NUMBER OF ITEM IN CIRCLE
○ ○ ○
AND AIRMAIL DIRECT TO PUBLISHER TODAY
NAME _____ TITLE _____
COMPANY _____
ADDRESS _____
CITY _____ STATE _____ ZIP _____
TELEPHONE _____
Inquiries can be processed only if title and company are shown.
1/8/73

350 Broadway, N.Y., N.Y. 10013 READERS' SERVICE (Att. J. Meyer)
Circle numbers for more information about advertisements, products and services.
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60
61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90
LIMIT: FIVE NUMBERS
☐ PLEASE SEND INFORMATION ABOUT SPECIAL RAILWAY AGE SUBSCRIPTION PLAN FOR EMPLOYEES AND CUSTOMERS.
NAME _____ TITLE _____
COMPANY _____
ADDRESS _____
CITY _____ STATE _____ ZIP _____
Inquiries can be processed only if title and company are shown.
1/8/73

achieved. Console and electronic equipment are all contained in one cabinet.

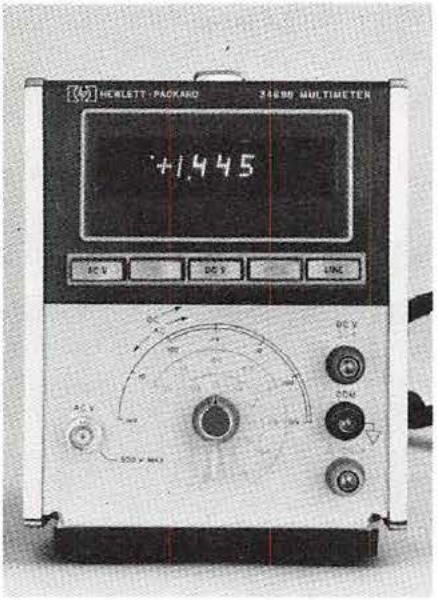
Circle 63 on reader service card.

Data set is a low-speed asynchronous modem

The General DataComm Industries 103-3 modem is a low-speed asynchronous modem that transmits and receives binary, serial data at rates up to 300 bps. The modem operates 2-wire, full or half duplex on the switched telephone network via the manual data access arangements F-57951 or 1000A (CDT).

Switch Controls: Analoop—a diagnostic feature which permits data loopback on the analog or tone side of the modem at the telephone line interface. Test—provides digital loopback for remote testing of Ans and Orig mode to GDC or other test centers. Ans/Orig—enables the operator to select either the Ans or Orig mode of operation.

Circle 64 on reader service card.

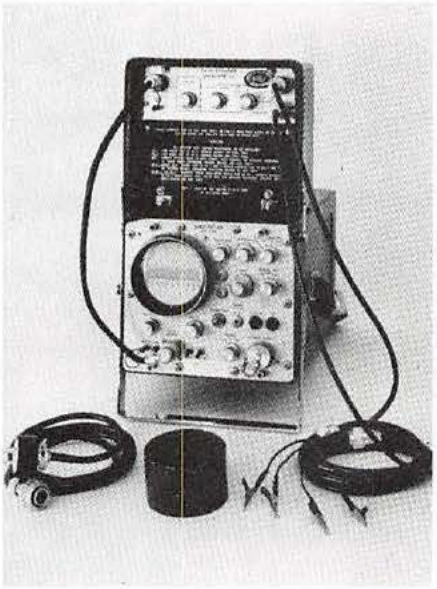


Meter can handle 26 range and function combinations

The HP 3469B is a versatile digital multi-function meter. Twenty-six different range and function combinations allow a wide variety of measurements of ac volts, dc volts, ohms and dc current.

As a digital ac voltmeter, the Hewlett-Packard product has high sensitivity (1 mvolt to 500 volts full scale) and wide bandwidth (20 Hz to 10 MHz). As a digital milliohmmeter, the 3469B has 1 milliohm sensitivity for measurement of contact resistances, components and plated-through circuit board hole resistances. A two-terminal input permits measurements with varying lead lengths. After the leads are attached to the instrument, the operator simply shorts them and makes an adjustment to compensate for the lead resistance. A 60Hz square wave ac current source is used on the 1 ohm range to eliminate the possibility of problems due to thermal offsets.

Circle 65 on reader service card



Cable fault locator uses pulse reflection

The James G. Biddle Co. CME-110 radar cable test set and pulse amplifier may be used to find faults on any cable system where cable-capacitance-per-foot is uniform enough for successful pulse propagation such as in shielded wire and cable, unshielded duplex or triplex, coaxial cable, concentric neutral, or twisted pairs.

The principle of operation used is the pulse reflection technique, in which a pulse down a cable will be reflected by a discontinuity: a positive-travelling reflection being received from an open circuit, a negative-travelling reflection from a short circuit. Fault resistance between a short and an open may also be observed, however. These in-between resistance values yield a reflection pulse amplitude in direct proportion to the magnitude of the discontinuity or fault. Reflected pulses are displayed on an oscilloscope at a time delay proportional to the distance down the cable.

Operable range extends from 2 yards to 10,000 yards with an accuracy of +5% reading the crt face-place deflection and +2% using an X-shift vernier. Cables having impedances from 10 to 1,000 ohms can be tested with this versatile, effective, economical test set.

A sturdy, one-piece watertight case houses both cables and connectors. Total weight of rechargeable battery and instrument is only 17.5 lb. The set also operates from 115 to 230 volts ac (45-550 Hz) or from an external battery of between 11-15 volts.

Circle 66 on reader service card

PLACE AIRMAIL STAMP HERE

RAILWAY AGE
350 Broadway
New York, N.Y. 10013

ATTENTION:
R.G. LEWIS, PUBLISHER

AIR MAIL

BUSINESS REPLY MAIL
No postage stamp necessary if mailed in the United States

POSTAGE WILL BE PAID BY

RAILWAY AGE
350 Broadway
New York, N.Y. 10013

ATTENTION:
J. MEYER

FIRST CLASS
PERMIT NO. 153
NEW YORK, N.Y.

Whiting finds so many ways to cut your service costs

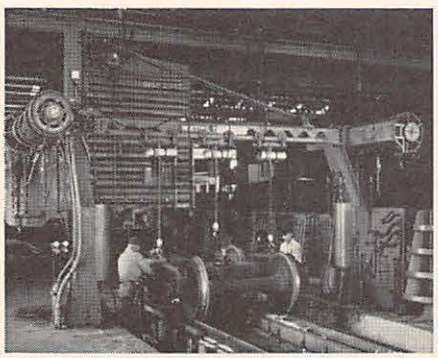
There are an encouraging number of new ways to shave time from maintenance schedules. Your Whiting engineer can show you most of them.

Our reputation for improving rolling stock service techniques has led to some interesting assignments. Like developing *complete systems* for Progressive Spot Repair, for washing out covered hopper cars, for filling locomotive sand boxes faster, for moving and spotting cars by remote control.

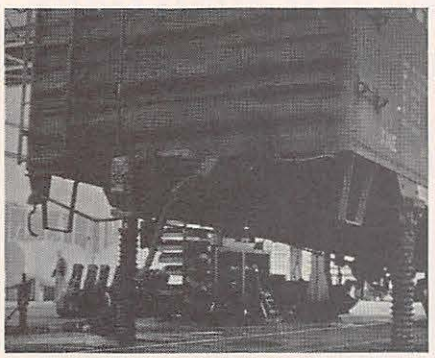
If *you* are considering new or modernized maintenance facilities, let's get together and discuss *all* the ways to save money.

ASK FOR Bulletin GT-104 describing Whiting ROBOT Remote Control Car Progression Systems for a wide range of repair and service operations.

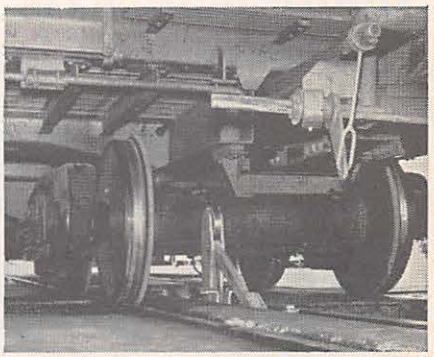
WHITING CORPORATION
HARVEY, ILLINOIS 60426 U.S.A.



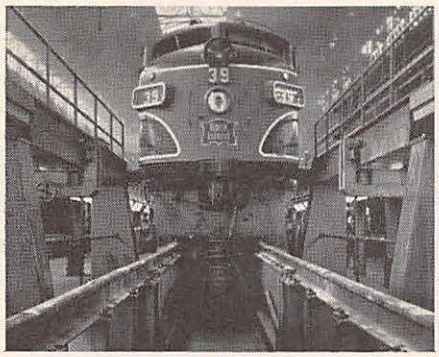
REPAIR STATION JIB CRANES



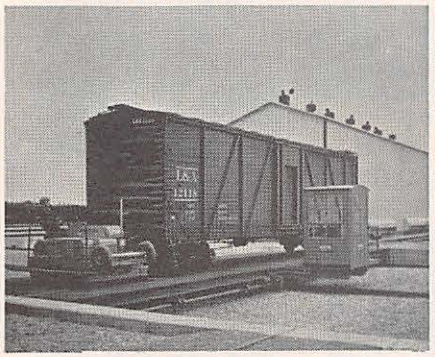
LATERALLY ADJUSTING RIPJACKS



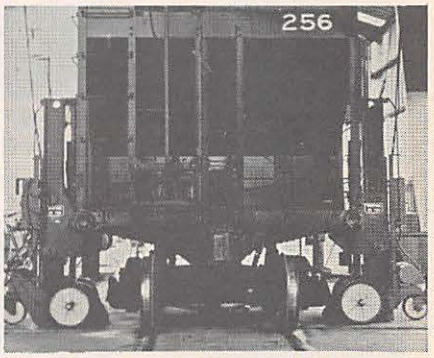
"ROBOT" REMOTE CONTROL CAR MOVERS



DROP TABLES

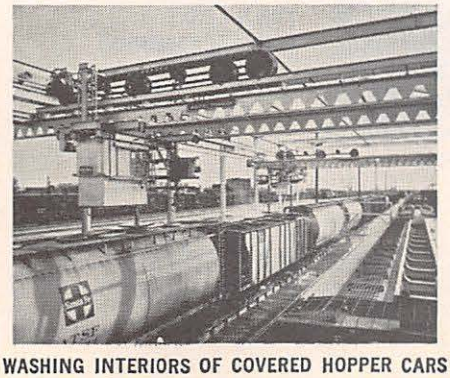


TRANSFER TABLES



PORTABLE JACKS UP TO 50-TON

TRAIN WASHING SYSTEMS



WASHING INTERIORS OF COVERED HOPPER CARS

LOCOMOTIVE SERVICE GANTRIES

Circle 18 on coupon page 41

(Continued from page 36)

Philadelphia, with jurisdiction over three divisions, including the **Baldwin-Hamilton Co.**, Wilmington, Del.

Roland W. Graff has been promoted to president, Industrial Division, **Nalco Chemical Co.**, Chicago. Mr. Graff will oversee Nalco's Water Treatment and Specialty Chemicals group, as well as manufacturing and research. He previously was a manager, Metal Industry Group.

Charles H. Foster has been appointed general sales manager, **Adams & Westlake Co.**, Elkhart, Ind. **Herman C. Gildner** has been appointed sales manager of transportation sales. **Delmer J. Horn** has been named regional sales manager of recreational vehicle products.

Railway Supply Co., Inc., Montgomery, Ala., has been appointed a distributor of radio remote control equipment for railroad locomotives of the **Union Switch & Signal Division** of **WABCO** in the states of Texas, Oklahoma, Louisiana, Arkansas, Mississippi, Alabama, Georgia, Florida, Tennessee, North and South Carolina.

Will T. Schugt has been appointed vice president-manufacturing, **Ringsdorff Corp.**, East McKeesport, Pa., and **PIAD Precision Casting Corp.**, an affiliate of Ringsdorff.

Larry Farris has been appointed regional sales manager, Midwestern area, **Jackson Railroad Equipment Co.**, with headquarters at St. Louis, Mo. Mr. Farris returns to Jackson after an interim post as sales manager for ISC Industries, Kansas City, Mo.

Raymond A. O'Brien has been named chief engineer, **Ajax Consolidated Co.**

Richard T. Sloan has been named southeastern district manager, **North American Car Corp.**, Atlanta, Ga. He was formerly interim manager of the Houston district office.

Rogers A. Werner, midwest regional sales manager, **National Steel Corp.**, has been named general sales manager with responsibility for nationwide field sales for Nailable Steel Floor produced by the **Transportation Products Division.**

TRANSIT

R.A. Raffesberger has been appointed vice president, Rail Transit Division, **Rohr Industries,** Chula Vista, Calif. Since joining Rohr in Nov. 1966, Mr. Raffesberger has held management positions in manufacturing engineering and transportation.

Peter G. Olson has been named president, **Connecticut Mass Transit Corp.**, a newly-formed subsidiary of the **Bross Utilities Service Corp.** at Bloomfield, Conn. Mr. Olsen will continue as vice president-administration of the latter corporation. Connecticut Mass Transit Corp. has been organized to plan, build and operate monorail urban mass transportation systems.

Phillip Craig, formerly assistant supervisor of passenger services, **Port Authority Trans-Hudson Corp.**, appointed administrative assistant to the chairman, **Metropolitan Transportation Authority**, New York.

OBITUARY

Charles E. Cameron, 58, manager, Chicago sales office, Railroad Products Group, **Abex Corp.**, died Dec. 13 in Presbyterian St. Luke's Hospital, Chicago.

CALENDAR

"Railroad Legislation, Today and Tomorrow" will be the theme of the Jan. 25-26 joint meeting of the soon-to-be-merged Central Western Shippers and Trans-Missouri-Kansas Shippers Boards. (Beginning with the June meeting, to be held in Tulsa, Okla., the boards will be merged under the name of Mountains-Plains Shippers Board.) The January meeting will be at the Brown Palace Hotel, Denver.

The **Transportation Association of America** will hold its 1973 National Transportation Institute in Chicago's Palmer House, Feb. 5-6. Featured luncheon speaker will be Dr. George P. Baker, a Penn Central trustee.

"Approaches to Shipment Consolidation and Facility Location" is the theme of the Feb. 27-28 University of Missouri-Columbia **Annual Traffic Executive Conference.**

A conference on "The Mid-Canada Transportation Scene–Commodity Movement" will be held in Winnipeg, Man., Feb. 1-2. The conference will be under auspices of the University of Manitoba's **Center for Transportation Studies.**

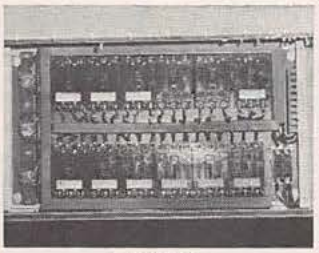
TELEWELD INC.

RAILWAY UTILITY COMPANY DIVISION

Designers and Manufacturers of Components for Mass Transit Cars

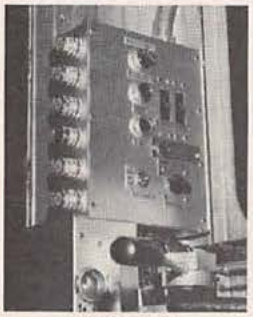
DESTINATION SIGNS (MANUAL, MOTOR DRIVEN AND REMOTE CONTROLLED)
RUN NUMBER SIGNS • CAR BODY HEATERS
CAB HEATERS and DEFROSTER ASSEMBLIES
CIRCUIT BREAKER PANELS • SWITCH PANELS
PANTOGRAPH GATES • END GATES

ELECTRIC PANEL

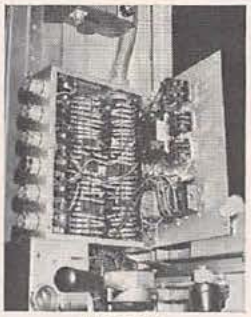


INTERIOR UNDER-CAR CIRCUIT BREAKER PANEL

CAB HEATER & DEFROSTER ASSEMBLY



EXTERIOR



INTERIOR

ENGINEMAN'S SWITCH PANEL

REPRESENTATIVE ITEMS DESIGNED AND MANUFACTURED FOR CARS BUILT BY PULLMAN-STANDARD FOR N.J.D.O.T. (ERIE-LACKAWANNA)

TELEWELD RUCO DIVISION

416 NORTH PARK STREET
STREATOR, ILLINOIS 61364

Circle 19 on coupon page 41

Market Outlook

CARLOADINGS

Loadings of revenue freight in the week ended Dec. 23, 1972 totaled 484,637 cars, according to the Association of American Railroads. This was a decrease of 5,997 cars, or 1.2%, compared with the previous week, and an increase of 72,905 cars, or 17.7%, compared with the corresponding week of 1971. Ton-miles generated by carloadings in the week ended Dec. 23 are estimated at 14.9 billion, an increase of 17.4% above the corresponding week of 1971.

REVENUE FREIGHT CARLOADINGS

Commodity	Dec. 23 week	Dec. 16 week
Grain	33,021	31,616
Farm products	18,810	18,251
Metallic ores	28,393	28,538
Coal	78,890	78,580
Crushed stone, gravel & sand	18,285	20,308
Nonmetallic minerals	8,696	9,470
Grain mill products	19,822	19,937
Food and Kindred products	23,863	24,141
Primary forest products	22,837	21,941
Lumber & wood products (except furniture)	16,502	14,646
Pulp, paper & allied products	23,019	22,453
Chemicals & allied products	25,283	25,347
Petroleum products	10,472	9,803
Stone clay & glass products	16,552	16,935
Coke	7,797	7,852
Metals & products	23,099	23,723
Motor vehicles & equipment	20,535	27,639
Waste & scrap materials	14,780	15,415
Forwarder & shipper assn. traffic	6,127	5,837
All other carloads	67,472	69,905
LCL Traffic	382	335
Total cars loaded	**484,637**	**492,672**
Cumulative total, 51 weeks	1972	1971
	25,672,690	24,875,435
Estimated revenue ton-miles (billions) 51 weeks	768.7	727.6

PIGGYBACK LOADINGS

U.S. piggyback loadings for the week ended Dec. 16, 1972, totaled 27,078 cars (8.7% above the corresponding week of 1971) and 46,111 trailers or containers (up 13.5% from 1971). Cumulative volume for the first 50 weeks of 1972 is 1,282,725 cars (up 10.6% from 1971) and 2,170,655 trailers or containers (up 14.1% from 1971).

IN CANADA

7 days ending	Tons of Revenue Freight	Cumulative Totals
Dec. 7, 1972	4,498,787	199,245,257
Dec. 7, 1971	4,258,276	199,910,971

TRANSIT

● *Washington Metropolitan Area Transit Authority.*—A joint venture headed by Morrison-Knudsen Co. has submitted the apparent low bid for constructing two miles of twin metro tunnels. The combine's $30,632,773 bid is 19.5% below WMATA's estimate for the three-year project. Partners in the joint venture include American Structures, Inc., and J. Rich Steers, Inc. Initial Metro operations on a 4.6-mile segment are scheduled for late 1974.

CAPITAL EXPENDITURES

● *Union Pacific Corp.*—Will spend $195 million on capital improvements in 1973, of which $120 million will go for railroad equipment and facilities, including 60 new locomotives and 2,150 new freight cars. (Details on p. 10.)

FREIGHT-TRAIN CARS

● *Burlington Northern.*—Ordered 400 100-ton triple-hopper cars from Greenville Steel Car; 200 70-ton bulkhead flat cars and 105 100-ton gondolas from Thrall Car; and 50 cabooses from Pacific Car & Foundry. All cars are scheduled for delivery in second quarter 1973.

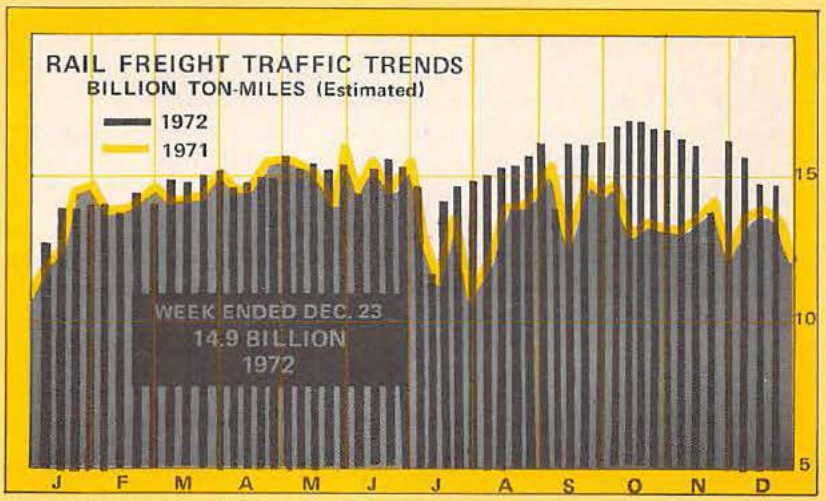
● *Southern Pacific.*—Ordered 1,000 wide-door box cars from Gunderson, Inc., at a cost of $17 million. Deliveries are expected to begin in late February and be completed in May. The cars will be equipped with Hydra-Cushion underframes.

FOREIGN

● *Poland.*—Vapor Corp.'s International Division has received an order for 65 steam generators from the Polish State Railways. The boilers will be installed on new diesel locomotives to furnish steam for heating passenger cars. Cost of the steam generators, and spare parts, totals more than $600,000; deliveries are scheduled for January through September 1973.

SPECIAL

● *Union Pacific.*—WABCO's Union Switch & Signal Division has received an order for 60 sets of continuous coded cab signal equipment for UP locomotives being built by EMD. The order amounts to about $300,000.



Source: Association of American Railroads

Moving People

D.C. METRO AT $1-BILLION IN CONTRACTS

Going into the New Year, the Washington Metropolitan Area Transit Authority had contracted for more than $1 billion in goods and services. Additional contracts totaling $578 million are expected to be awarded during 1973. Nearly two-thirds of the increase—some $376 million—will go for construction work. In 1972, WMATA put 8.2 new miles and 12 new stations under construction. This raised total mileage under contract to 16.3 and stations to 23. Another 21 miles of route and 15 stations were placed under final decision.

TRANSIT SYSTEMS DISCLOSE SPENDING PLANS

U.S. and Canadian transit systems plan to invest $36.2 million in signaling and communications capital improvements in 1973; they will spend an additional $35.5 million for non-capital items. On the capital side, signaling will get $25.3 million; communications, $10.1 million; and electronic data processing (EDP), $800,000. Non-capital expenditures will include $13.3 million for signaling, $4.7 million for communications and $17.5 million for EDP.

CTA MOVES TO TRIM DEFICIT

In a series of moved designed to reduce (though not eliminate) its operating deficit, Chicago Transit Authority plans to raise its fares by five cents (to 50 cents) effective Feb. 1, impose an 8% cut in service, and lay off about 500 workers. These decisions were reached after budget estimates indicated a $33.6-million operating deficit for 1973. The fare increase and cost-cutting measures would reduce this deficit by about $28.8 million, to $4.8 million. The budget includes no provision for wage increases or for claims payments.

CTA SCHEDULES TRANSIT COURSES

In 1972, the Chicago Transit Authority began offering a six-day cram-course on mass-transit operations on an experimental basis; now, CTA is going to a regular schedule, with programs scheduled in February, May, August and November. The course is aimed at personnel in government and in the public-transportation industry and, CTA says, will provide "a unique opportunity to learn the operations of a mass-transit system."

MILWAUKEE ROAD COMMUTERS GET FUNDS

The Northwest Suburban Mass Transit District in Chicago, one of two such districts along Milwaukee Road commuter lines, says that a Federal capital grant of $20.8 million received recently, along with a state grant of $6.1 million received in November, will be used to purchase 13 new locomotives and for station and yard improvements. As soon as Illinois DOT approval is granted, 36 new commuter coaches will be added from the grants. Also, funds will be allocated for signaling improvements. Finally, the 62 double-deck cars in the existing Milwaukee Road commuter fleet will be transferred to public ownership under the NSMTD plan.

MONORAIL FOR HARTFORD?

The Connecticut Mass Transportation Corp., a subsidiary of Bross Utilities Service Corp., has offered to build, maintain and operate a 9,500-ft, $5-million monorail transportation system serving downtown Hartford, Conn., "without asking for money from the city, the state, or the Federal government." The company proposes to build an elevated track—"an improved version of the monorail used at Expo '67 in Montreal"—in a loop through downtown Hartford. Peter G. Olson, president of Connecticut Mass Transportation, said he would utilize the "Unimobil/Habegger monorail system, which was developed in Switzerland and has been in operation there since 1964."

'73 EUROPEAN TRANSIT TOUR PLANNED

Railway Age will again sponsor a Rail-Transit Seminar Tour of Europe. This year's tour will leave New York April 27 and return May 12. It will include attendance at the opening sessions of the biennial meeting of the Union Internationale des Transports Publics (UITP) in The Hague. The itinerary includes Paris, Prague, Berlin, Rotterdam/The Hague, London, and Derby (home of the British Rail Research Centre, where a prototype Advanced Passenger Train is being tested). Railway Age Publisher Robert G. Lewis will conduct the tour; inquiries should be directed to him at 350 Broadway, New York, N.Y. 10013.

AUTO-TRAIN PLANS EXPANSION

Auto-Train, which carried more than 52,000 automobiles and 155,000 passengers between Lorton, Va., and Sanford, Fla., during its first year of operation, is planning to add two more trains (one in each direction) to its current route and is continuing to examine possible new routes. In a year-end statement, Auto-Train President Eugene Garfield noted that during the year the company had purchased 33 half-dome coaches from Union Pacific, ordered five additional General Electric locomotives, and made plans to acquire 40 additional auto carriers.

Vapor Slim-Line Door Operator "fits in" With NYCTA's New Super Subway Car

How?

Vapor's Slim-Line door operator "fits in" between the outer sheathing and interior walls of the car. This puts **Slim-Line** up off the floor where it is always clean and convenient to inspect.

And **Slim-Line's** light-weight, completely unitized package makes it easier and quicker for carbuilders to install.

Then too, **Slim-Line** permits the car designer greater freedom of body styling and seating arrangement.

More important, **Slim-Line** "fits in" because we meet the exacting demands for performance and reliability expected by the New York City Transit Authority.

And that's what we're talking about when we say **Slim-Line** "fits in."

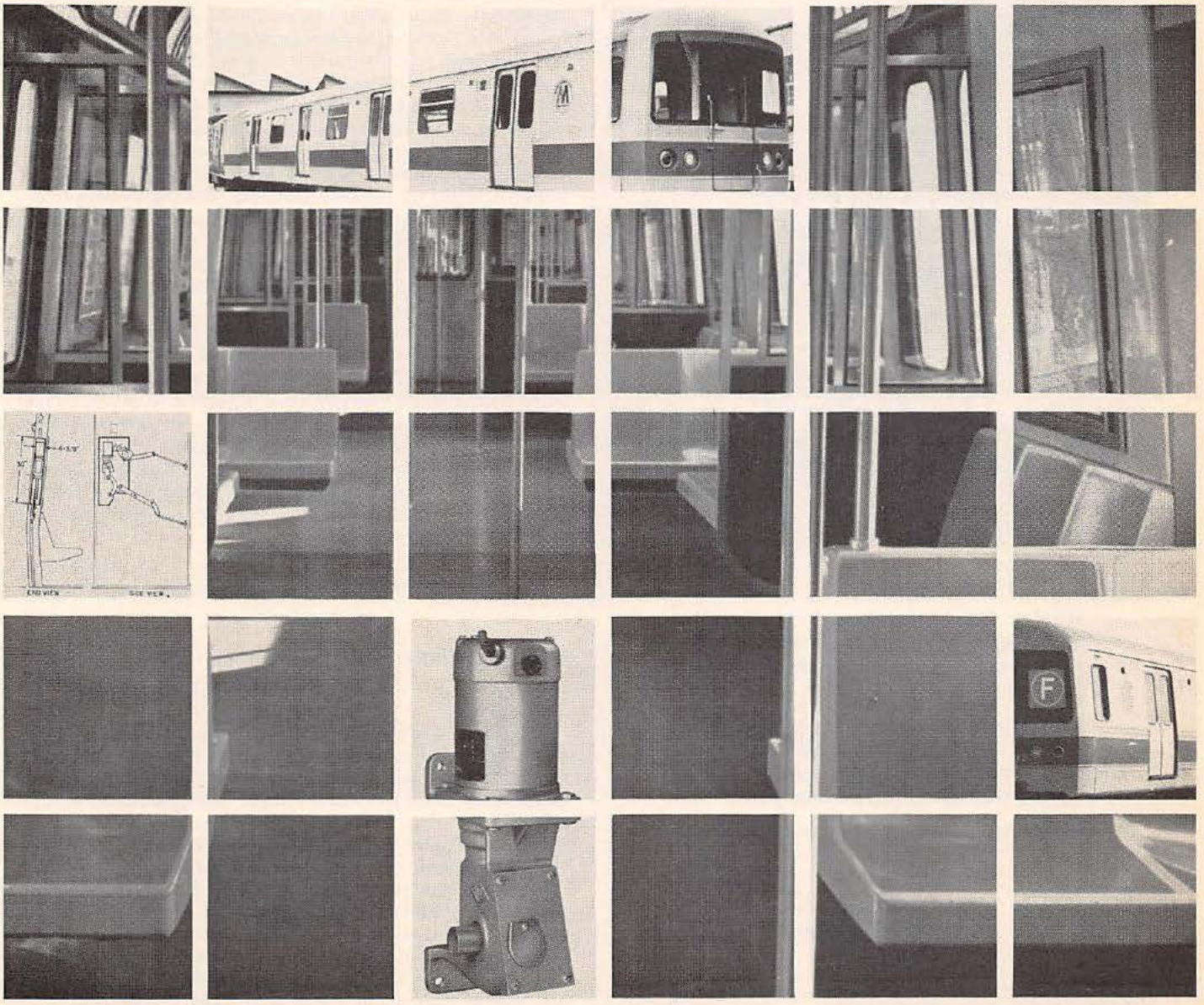
See for yourself. Let us show you how **Slim-Line** "fits in" for you. Ask to see our color movie, "People On The Move."

The **Slim-Line** door control system is just one of the "advance concept" product ideas Vapor has developed in conjunction with transit authorities, consulting engineers and carbuilders.

Vapor Corporation has total capability to provide complete door operating and signal control systems as well as speed indicating, air comfort control and heating equipment for your transit, railroad commuter cars and people mover vehicles.

Vapor Corporation also designs, develops and manufactures electronic, electromechanical and pneumatic products to meet the high standard of reliability and performance demanded by today's transportation systems.

For information contact the Transportation Systems Division, Vapor Corporation, 6420 West Howard Street, Chicago, Illinois 60648. In Canada, Vapor Canada Limited.

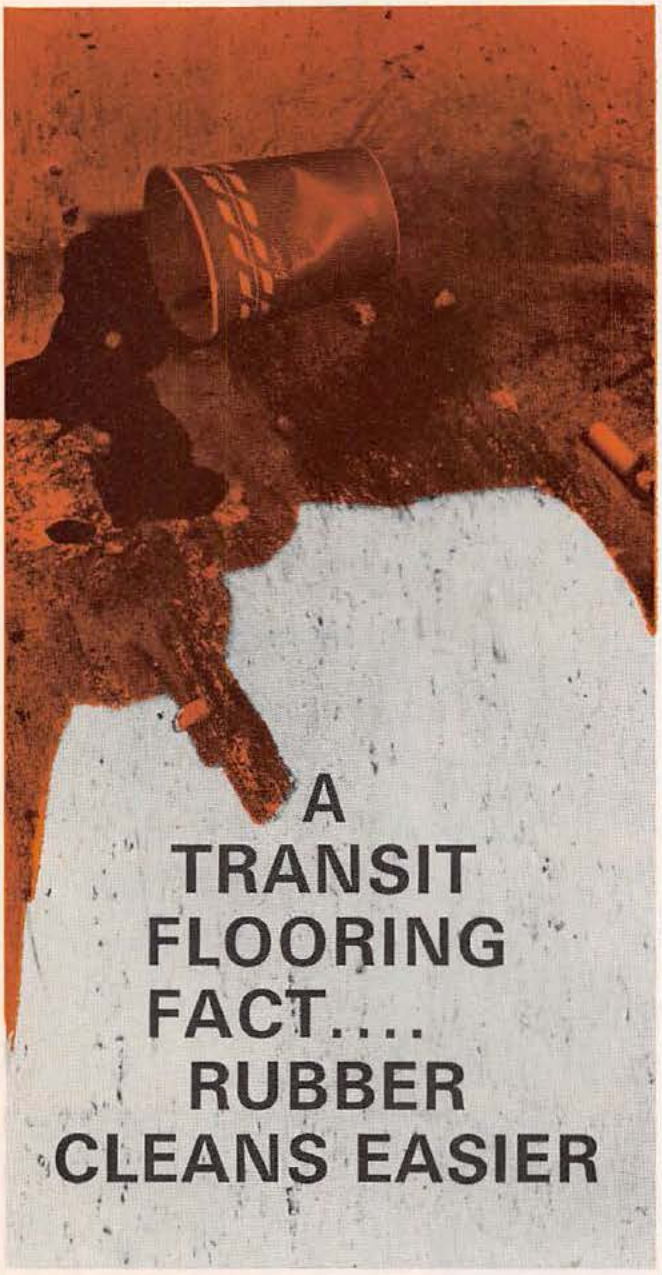


Photos Courtesy—New York City Transit Authority

VAPOR CORPORATION

TRANSPORTATION SYSTEMS DIVISION

Circle 20 on coupon page 41



Whether it's slush, snow, dirt, cigarette scorch, gum or grease . . . it will clean off rubber Transit-Flor quickly, without staining, singeing or marring.

Durability, safety and eye appeal have been blended into Transit-Flor, providing your rail cars with a long-wearing, maximum-quality flooring that will outperform any other.

Result: Years and years of unexcelled wear.

THE R.C.A. RUBBER COMPANY

An Ohio Corporation of Akron, Ohio
1833 E. Market St., Akron, Ohio 44305

Circle 31 on coupon page 41

LETTERS

"Railroads and the environment"

Ho-Ho-Kus, N. J.

To the Editor:

I found your article entitled "Railroads and the environment" (RA, Dec. 11, p. 19), very interesting. I do not know if you realize why we have diesel locomotives. Prior to 1925 when the first diesel locomotive was delivered to the Central Railroad of New Jersey (at the Bronx Terminal), the city of New York requested the railroads to show them what type of power could replace the steam locomotives in the yards that could not be electrified. The result was that diesel switching locomotives were delivered to every important railroad in New York City starting in 1925. In other words, environmental control of the railroads has been here to my knowledge prior to 1925.

You have another heading that is also very true, "One major worry: Today's solution can become tomorrow's problem." The steam locomotive was replaced because of its tremendous dirty exhaust from the smoke stack. The diesel locomotive's exhaust is clean compared to the steam, but it is not clean compared to the gas turbine. Chrysler just received a contract from the Environmental Protection Agency to build a gas turbine automobile that will meet the 1976 requirements. I think the railroads should closely watch what the automotive people are doing. The electric transmission in a diesel locomotive is both expensive and heavy and is not required with a gas turbine. There are other advantages to the gas turbine besides meeting exhaust requirements and having a unit that is lightweight compared to the diesel and takes little space and is ideal for high speed trains. The diesel will continue to do a very good job on the slow freights.

Inside of ten years after the first diesel locomotives were delivered, the diesel man realized he had to have a gas turbine to get more power out of his engine and make it suitable for the road service. ALCO was the first company to put a gas turbine on a diesel engine to turbocharge it to get 50% more power out of the engine. Within another ten years they were getting 100% more power out of the engine. In those days, the diesel men were glad to have a gas turbine to make a better diesel. Today for high-speed railroad service, the gas turbine can be used through a torque converter to drive the train and eliminate the diesel.

R. Tom Sawyer
Former Manager Research Dept., ALCO

UMTA as Santa Claus

Ringoes, N.J.

To the Editor:

Christmas is over, but UMTA can look back at its Santa Claus role in furnishing the University of West Virginia with a $53 million people-mover system. Couldn't an equally useful and certainly more reliable campus transportation service have been provided with more conventional technology, for example, a manually-operated electric trolley bus on a dedicated roadway, elevated where necessary and otherwise inexpensively constructed on the surface? Conventional buses could be used in periods of peak traffic, such as football games, alleviating traffic jams on regular streets. Such a system could have been built for a tiny fraction of the cost. The excuse that it serves as a testing ground for such way out transportation is not acceptable. The taxpayers are financing Pueblo for that purpose.

Samuel Freeman
General Manager
Black River & Western Railroad

Advertisers Index

American Steel Foundries 24
Bethlehem Steel Corp. 3
Buffalo Brake Beam Co. . . . . IFC
CF&I Steel Corporation 6
Chevron Chemical Company 4
Commercial Plastics & Supply Corp. 11
Coverdale & Colpitts, Inc. 36
ESB, Inc., Exide Industrial Div. 16
Exxon Company, U.S.A. 38-39
General Electric Credit Corp. 40
Kerite Company, The . . . . . IBC
Nordberg-Division of Rex Chainbelt, Inc. 34-35
Rails Company, The 33
R.C.A. Rubber Co., The 48
Republic Steel Corporation 12-13
Rockwell Manufacturing Co. . . . . BC
Safety Electrical Equipment Corp. 37
Speno, Frank 33
Teleweld, Inc. 44
Universal Railway Devices Co. 23
Vapor Corp. 47
WABCO-Transportation Systems Group 14-15
Walton Products, Inc. 36
Whiting Corporation 43

Railmark

Specialists in Advertising, Marketing, Corporate Identification, & Communications. For Information Contact Railmark, Ltd., Station Plaza East, Great Neck, N.Y. 11021 / Tel: (212) 895-7498

TRANSPORTATION STUDIES AND REPORTS

- *Rapid Transit*
- *Railroad*
- *Transit Bus*
- *Operations*
- *Maintenance*
- *Mergers*
- *Acquisitions*
- *Valuations*

COVERDALE & COLPITTS, INC.
Transportation and Industrial Consultants
140 Broadway, New York (212) 943-7400

FOR SALE OR FIVE YEAR NET LEASE

Approximately 200 40-foot, 50-ton RBL boxcars built in 1959. Features: heavy insulation, 8-foot plug doors, stabilized trucks, cars presently in service and well maintained. Write for details, Railway Age Box 147, 350 Broadway, New York, N.Y. 10013

DCO The De Leuw, Cather Organization CONSULTING ENGINEERS
165 W. WACKER DRIVE • CHICAGO 60601
SUBWAYS • RAILROADS • SIGNAL SYSTEMS • PUBLIC TRANSIT • TRAFFIC • PARKING
HIGHWAYS • BRIDGES • PORT DEVELOPMENT • COMMUNITY PLANNING • URBAN RENEWAL
AIRPORTS • MUNICIPAL WORKS • INDUSTRIAL • ENVIRONMENTAL SCIENCE AND ENGINEERING
BOSTON • BUFFALO • NEWARK • NEW YORK • OKLAHOMA CITY • PHILADELPHIA
PORTLAND, OR • SAN FRANCISCO • SEATTLE • WASHINGTON, D.C.

MANAGEMENT OPPORTUNITY

Do you want to:
- —Run a freight car manufacturing plant?
- —Help a company to grow?
- —Live in a rural area?

We have big plans—we need big people. Successful management experience essential. All correspondence confidential. Send resume. Box 148, Railway Age, 350 Broadway, New York, N.Y. 10013.

Freight Car Design Engineer

Prime opportunity for design engineer with thorough knowledge of freight car design and construction. Must have a minimum of five years' experience and be completely familiar with AAR Manual, Interchange Rules, DOT Safety Appliance and Design Manual requirements. Position offers excellent salary and complete benefits program with a progressive Midwest carbuilder. Box 149, Railway Age, 350 Broadway, N.Y. N.Y. 10013.

ALWAYS WELCOME— EASY TO GIVE

Gift Subscriptions to RAILWAY AGE. Your railroad customers will appreciate and remember your goodwill gesture every time an issue arrives (P.S. No time like the present to write for group rates.) John E. Rogers, RAILWAY AGE, 350 Broadway, New York, N.Y. 10013

TECHNICAL SERVICE REPRESENTATIVE

Preferably Railroad mechanical department background with basic knowledge of AAR Rules. Travel required, company car furnished. Bonus plan. Headquarters in Chicago area. Send resume and salary requirements in complete confidence to box No. 146, Railway Age, 350 Broadway, New York, N.Y. 10013.

TRANSPORTATION CONSULTANTS

- Railroads
- Operations
- Mergers
- Reorganization Planning
- Transit
- Valuations
- Highways
- Maintenance
- Rates
- Industrial
- Acquisitions
- Divisions
- Financial
- Ports

WYER, DICK & CO.
(A Subsidiary of Edwards & Kelcey, Inc.)
New York, Boston, Minneapolis, Philadelphia, Gainesville, Sao Paulo, Madrid, London.
Central Office: 8 Park Place, Newark, N. J. (201) 621-7050

IF YOU ARE MOVING . . .

ATTACH ADDRESS LABEL HERE

We need 5 weeks notice before change of address becomes effective. Attach mailing label here (But in any case give us complete old address) and write new address below. Mail to:

RAILWAY AGE
P.O. Box 530 Bristol, Conn. 06010

Name .....
Address .....
City, State, ZIP .....

Advertising Sales Department

Chicago, Ill. 60602
29 E. Madison St.
(312) 641-5815
C. James Fisher—vice president—sales
John M. Brennan regional sales manager
Ronald W. Sweeney

New York, N.Y. 10013
350 Broadway
(212) 966-7700
W. Arthur Cubbage regional sales manager

Pittsburgh, Pa. 15234
300 Mt. Lebanon Blvd.
(412) 341-0844
Ronald M. Giallonardo regional sales manager

Dallas, Tex. 75206
Noel Page Building
6400 N. Central Expressway
(214) 361-6972
Joseph Sanders

Los Angeles, Cal. 90025
11704 Wilshire Blvd.
(213) 477-4004
Fred Klaner, Jr.
Philip O. Bowers

Sausalito, Cal. 94965
3030 Bridgeway Building
(415) 332-1481
(415) 332-1482
Lewis A. Vogler

London S.W. 1, England
01-839 6318
67/68 Jermyn St., St. James's
Kenneth J. Hendry
Stuart K. Elliott

Manchester 22, England
Haletop
Wythenshawe Civic Center
Ian Goulden

Paris, 8e, France
70 Rue de Ponthieu
Stephen Brown-Joussard
Jean-Claude Lamoine

4 Dusseldorf-Nord
Eitelstrasse 32
E. Hillerbrand
Reinhard Schomburg
Ronald Fischer

Tokyo, Japan
Sun Gain Shia, Ltd.
Shiba Nikkatsu Bldg.
13, Shiba Park
Minato-Ku
C.H. Yiu, Managing Director

Viewpoint

Mr. Brinegar, Mr. Herringer, and Mr. Nixon

The initial reaction to the appointment of Claude S. Brinegar, an oil company executive, as the new Secretary of Transportation has been a little extreme, among both the anti's and the pro's.

The anti-Brinegar faction includes those who have not yet grown tired of saying that the Secretary-designate is tarred not only with the brush of an oil spill, but also with his company's opposition to a gasoline-tax diversion to aid mass transit in California. We are prepared to believe that Mr. Brinegar did not wilfully pollute the Pacific; and we accept his word that he did not sign the company check that reportedly went to the anti-transit forces in California. (We have also not forgotten that just about the kindest thing that could be said of John A. Volpe four years ago was that he was an uncommonly successful concrete mixer. This week Mr. Volpe is being given a hero's farewell by the Institute for Rapid Transit.)

Among the pro-Brinegar forces are those who feel that because he *is* an oil company man, Mr. Brinegar will tend to over-compensate by becoming an implacable foe of his former associates. This hardly does justice to a man who, whatever he may do in Washington, has certainly not achieved his present eminence in the business world by running scared in a popularity contest.

The other DOT appointment which is of surpassing interest, and some concern, to transit men is that of Frank Herringer as administrator of the Urban Mass Transportation Administration. The main worry appears to be that Mr. Herringer (1) knows nothing about transit and (2) is far too well known in Washington as a White House man. (Interestingly, the main complaint four years ago about his predecessor, Carlos Villarreal, was that he (1) knew nothing about transit and (2) was far too little known in Washington to have any real clout. Mr. Villarreal will join Mr. Volpe this week at the IRT's farewell-to-the-heroes party.)

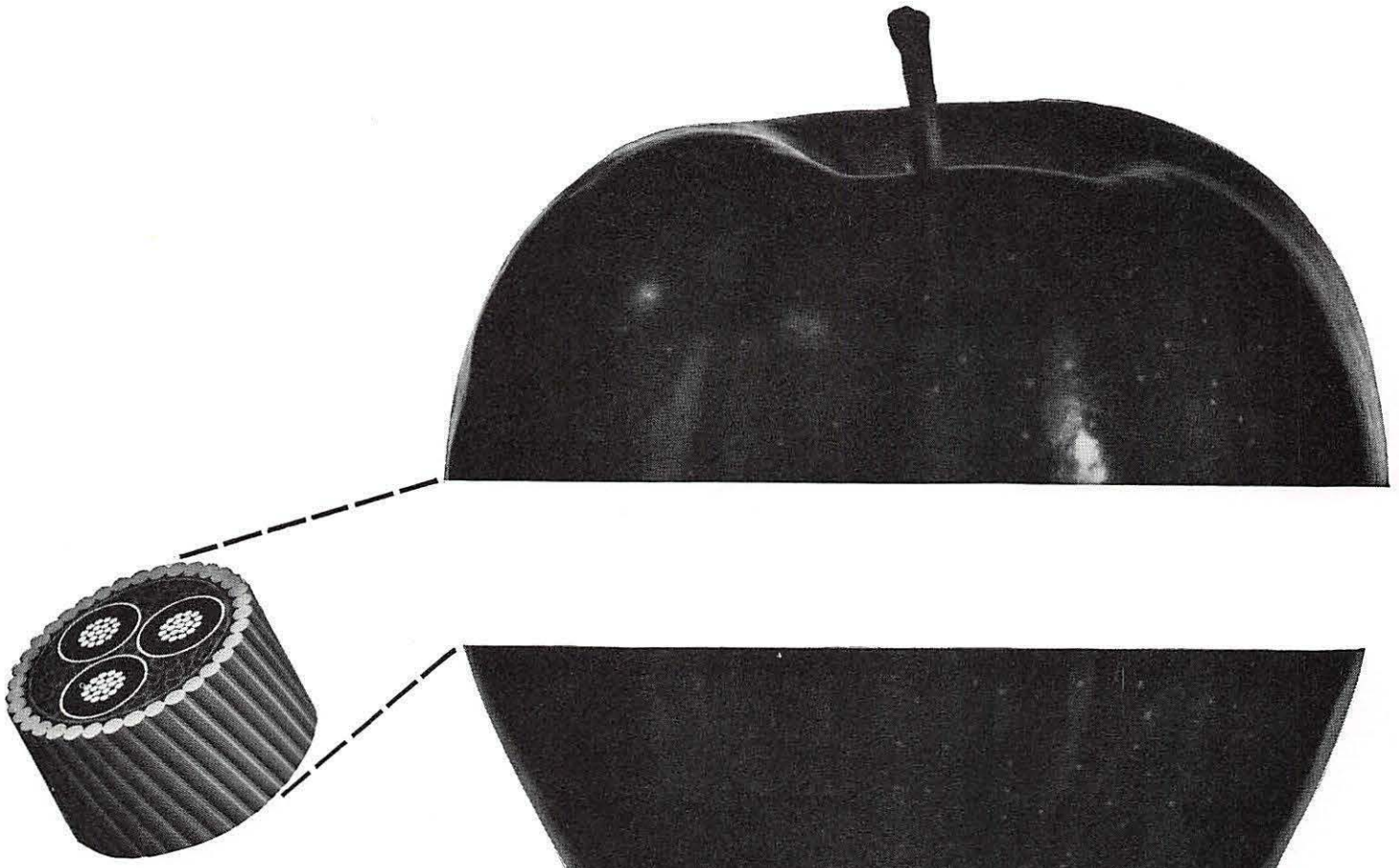
THE WHITE HOUSE IS THE PLACE TO WATCH

Actually, what is far more important than the backgrounds of the appointees themselves, assuming they are the competent executives that both Mr. Brinegar and Mr. Herringer appear to be, is the direction they will receive from the White House. It is uncertainty in this area which is of genuine concern.

As pointed out elsewhere in this issue, there are very real fears that the Administration may have cleaned house at DOT as a prelude to cutting back on programs developed during the first four years.

Others feel that President Nixon has shrewdly picked just the team that can finish the job that Mr. Volpe and Mr. Villarreal so ably began.

In the absence of compelling evidence to the contrary, we may be counted, as of now, in the latter group. Whatever you may think of President Nixon, he has a sense of history. And he is not likely to let slip the opportunity to be remembered as the man who did something more than merely talk about improving mass transportation—and at the same time, and by the same action, protecting the environment and conserving our dwindling energy resources.



The fruit you gather from Kerite's long record of successful performance is the greatest Quality Assurance there is. Total Reliability—

Specify Kerite.

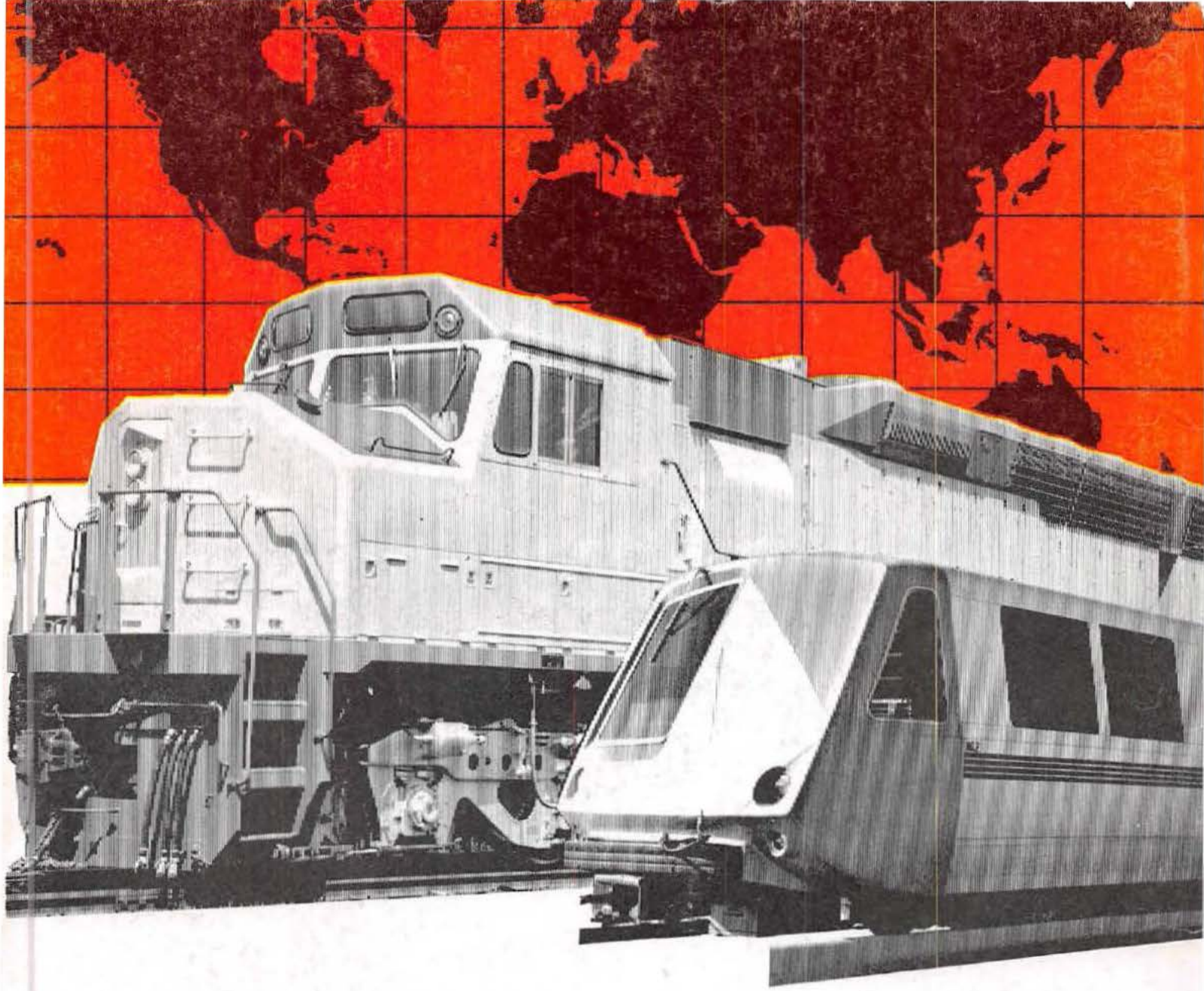
The proof is not just certified on paper, it is backed by 116 years of performance.

The Kerite Company • Principal Offices: Boston; Chicago; New York; Philadelphia; San Francisco; and Seymour, Connecticut • Sales Representation throughout the United States. A subsidiary of Harvey Hubbell Incorporated.

MEMBER RPI Railway Progress Institute

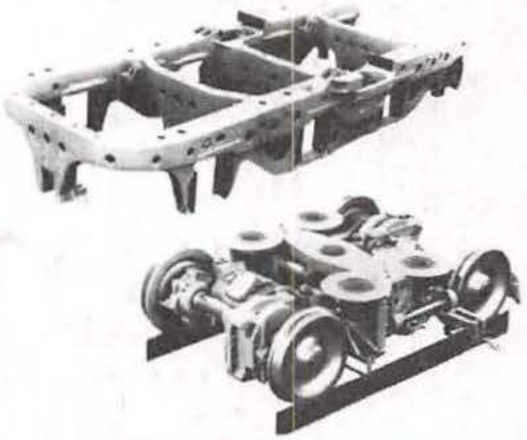
Kerite

the cable that lasts . . . and lasts . . . and lasts . . .



For the new world of rail transportation - trucks by **Rockwell**

Probe the growing needs of the changing rail transportation industry . . . you'll find the mark of Rockwell—world's largest producer of locomotive truck components. Rockwell offers the industry a unique combination of truck manufacturing expertise and design capability. Excellent production facilities and a well earned reputation for transit truck design innovation are key factors in Rockwell's new leadership in providing critical suspension sub-systems to a rail transportation industry that is *coming alive*.



Rockwell

TRANSPORTATION EQUIPMENT DIVISION,
ATCHISON, KANSAS 66002

Circle 2 on coupon page 41